HITACHI CMT-2159

MODEL

SERVICE MANUAL + CMT2139

HITACHI

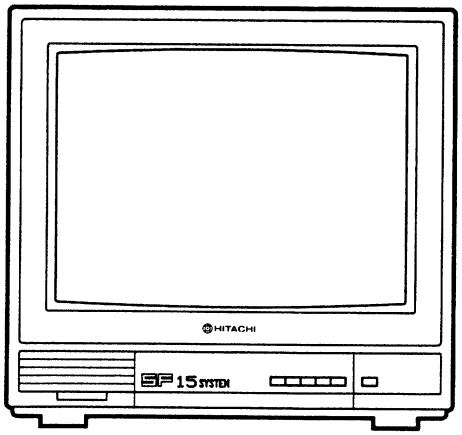
• SERVICE MANUAL

YK | No.0252E 1717

CMT-1435
CMT-2139

PAL
SECAM
NTSC

G7PN-M Chassis



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CAUTION:
Before servicing this chassis, it is important that the service technician read the "Safety Precaution" and "Product Safety Notices" in this Service Manual.

TECHNICAL SPECIFICATIONS

TV standard	.625-line	B.G/PAL, B.G/SECAM D.K/PAL, D.K/SECAM I/PAL, H/PAL K'/SECAM
	525-line	M/NTSC NTSC 4.43/5.5 NTSC 4.43/6.0 NTSC 4.43/6.5
Representative Channel coverage (frequency range 48MHz~300MHz 470MHz~890MHz)	.CCIR:	E2~12, E21~69 01~3, S1~10, S11~20
	OIRT:	R1~12, R21~69
	JAPAN:	J1~12, J13~62
	U.S.A.:	US2~13, J~W US14~83
	H.K.·U.K:	UK21~69
	China:	C1~12, C13~57

Programme selectors	.UP/DOWN push buttons with Electronic Tuner
Aerial impeadance	75-ohm unbalanced type
Picture tube	.A34JRH61X
Speaker	6 x 9
Sound output	.Max. 1W
Mains voltage	AC127V (Usable range 80 ~ 290V), 60/50Hz
Power consumption	.69W
Weight.	.Approx. 10.4Kg
Dimension (W x H x D)	37.0 cm x 35.4 cm x 38.0 cm

*Specifications are subject to change without notice for performance improvement.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

SOLID STATE COLOR TELEVISION

September 1988 **YOKOHAMA WORKS**

SAFETY PRECAUTIONS

WARNING: Since the chassis of this receiver is connected to one side of the Mains Supply during operation, service should not be attempted by anyone unfamiliar with the precautions necessary when working on this type of equipment. The following precautions should be observed.

1. Do not install, remove, or handle the picture tube in any manner unless shatter-proof goggles are worn. People not so equipped should be kept away while picture tubes are handled. Keep picture tube away from the body while handling.
2. When replacing chassis in the cabinet, all the protective devices are put back in place, such as; barriers, non-metallic knobs, adjustment and compartment cover or shields, isolation resistors-capacitors, etc.
3. When service is required, observe the oritinal lead dress. Extra care should be taken no assure correct lead dress in the high voltage circuitry area.
4. Always use the manufacturer's replacement component. Especially critical components as indicated on the circuit diagram should not be replaced by other makes.
   Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.
5. Before returning a serviced receiver to the customer, the service technician must thoroughtly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the instrument by the manufacturer has become defective, or inadvertenly defeated during servicing.
   Therefore, the following checks are recommended for the continued protection of the customers and service technicians.

INSULATION

Insulation resistance between the mains poles and any accessible metal parts should not be less than 7MΩ at 500V DC. Also, no flashover or breakdown should occur during the dielectric strength test, to apply 4KV AC for one minute between the mains poles and any accessible metal parts.

X-RADIATION

TUBES: The primary source of X radiation in this receiver is the picture tube. The tube utilized in this chassis is specially constructed to limit X radiation.

For continued X radiation protection, the replacement tube must be the same type as the original, HITACHI approved type.

High Voltage

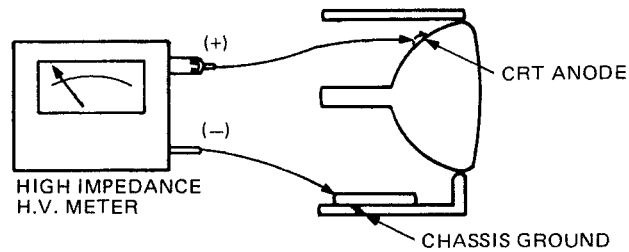
This receiver is provided with a hold down circuit for clearly indicating that voltage has increased in excess of a predetermined value. Comply with all notes described in this Service Manual regarding this hold down circuit when servicing, so that this hold down circuit is operated correctly.

Serviceman warning

With minimum Black Level and Picture, the operating high voltage in this receiver is lower than 26.0kV. In case any component having influence on the high voltage is replaced, confirm that high voltage with minimum Brightness and contrast is lower than 26.0kV.

To measure H.V. use a high impedance H.V. meter. Connect (–) to chassis earth and (+) to the CRT anode button. (See the following connection diagram).

NOTE: Turn the power switch off without fail before the connection to the Anode button is made.

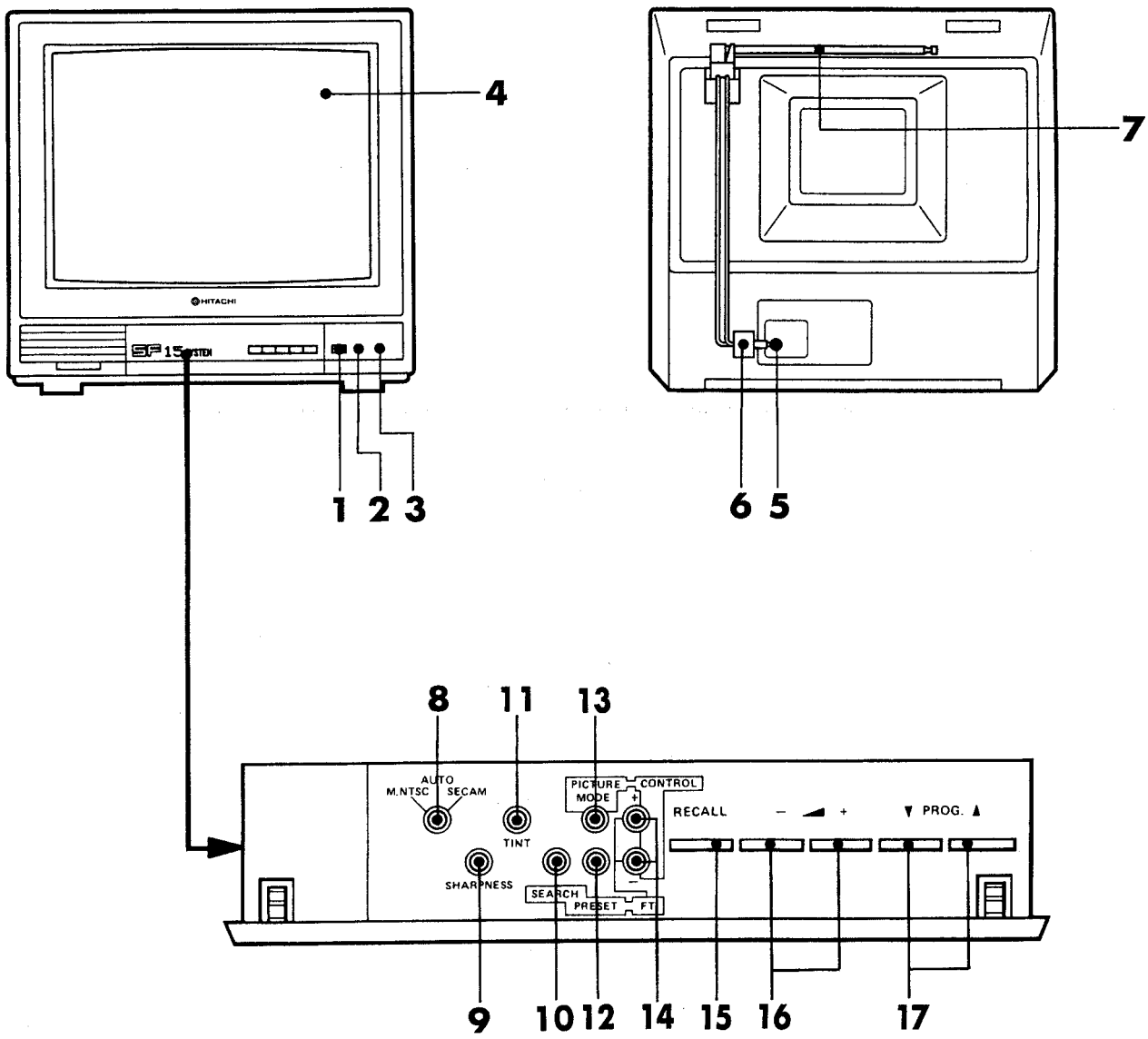


PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in HITACHI television receiver have special safety related characteristics. These characteristics are often not evident from visual inspection nor can be protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified by marking with a ⚠ mark in the schematics and on the replacement parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one shown in the parts list in this Service Manual, may create electrical shock, fire, X radiation, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies of, HITACHI Service Manual may be obtained at a nominal charge from your HITACHI SALES CORPORATION.

CONTROLS



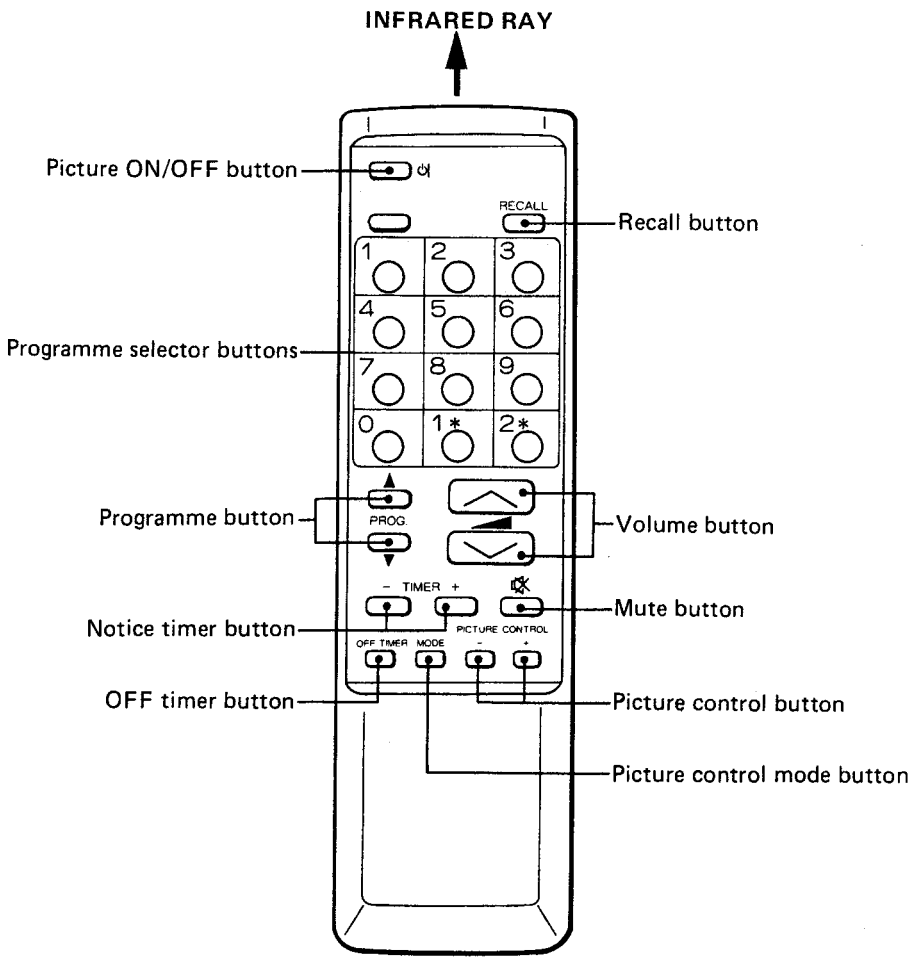
CONTROLS

1. ON-OFF switch
2. Stand-by indicator
3. Remote control receiver
4. Programme indicator
5. Aerial input socket
6. Adaptor
7. Telescopic antenna
8. System switch
9. Sharpness control
10. Search button
11. Tint control
12. Preset button
13. Picture control mode button
14. Fine tuning button (FT button) /Picture control button
15. Recall button
16. Volume button
17. Programme button

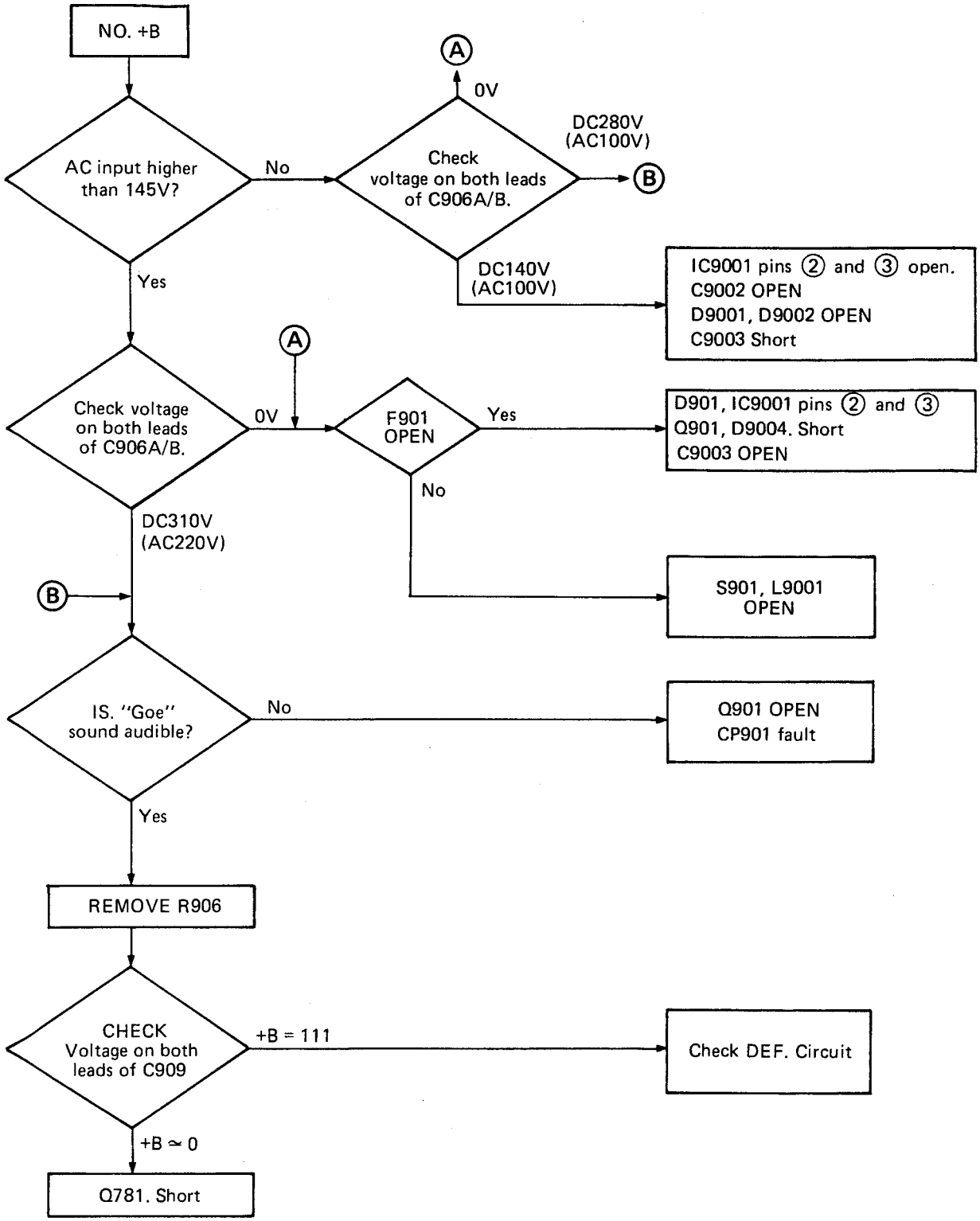
MAIN FEATURES

- 15-System: B-PAL/G-PAL/D-PAL/K-PAL/I-PAL/ H-PAL/B-SECAM/G-SECAM/D-SECAM/ K-SECAM/K'-SECAM/M-NTSC/ NTSC4.43-5.5/NTSC4.43-6.0/NTSC4.43-6.5
- IC transistorized circuits
- NEW HITACHI IN LINE color picture tube
- "Quick Start" without preheating
- UP/DOWN programme selector system
- Picture mode control system (Brightness, Contrast, Color)
- AVF (commercial power supply wide-range control)
- AFC (Automatic Frequency Control)
- Full remote-control
- Programme No., Volume, Tuning bar, Notice timer, Off-timer indication
- Off-timer function (Max. 150 minutes)
- 30-programme
- The state (programme position, volume, color, brightness and Contrast) before the power is turned off is set when the power is turned on again.
- Notice timer function

HANDLING OF REMOTE CONTROL



TROUBLE SHOOTING AND REMEDY



POWER SUPPLY CIRCUIT

1. Features

(1) Wide control range 80V to 290V AC.
(2) Double voltage switching IC used.
(3) Low power consumption.

2. Circuit Description

Fig. 1 shows a basic circuit.

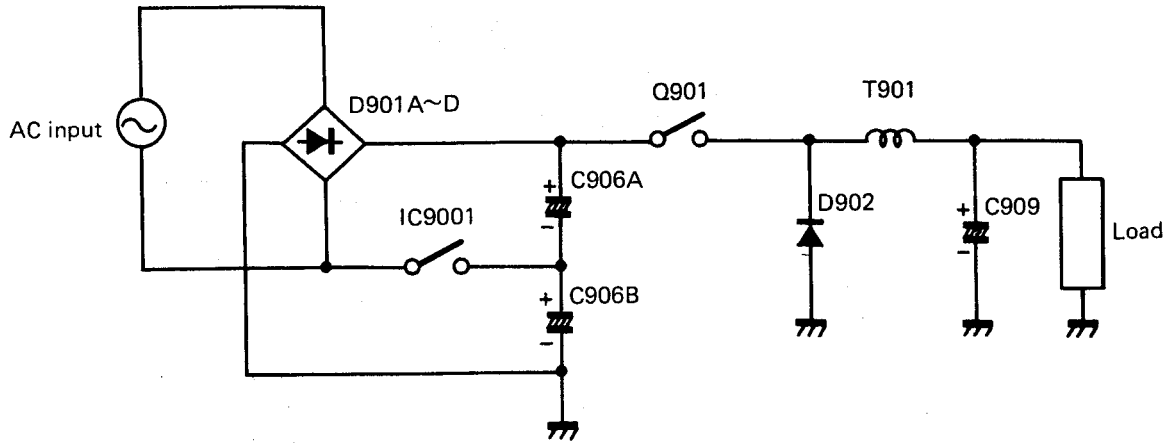


Fig. 1

Q901, D902, T901 and C909 are not explained here as they are the same as those of the G7PN chassis.
The G7PN-M power supply circuit uses the double voltage switching IC9001 to achieve a wide control range.
At 200V AC, IC9001 is switched off and the AC input forms a bridge commutator consisting of D901A to D, C906A and C906B. At 100V AC, IC9001 is switched on to form a double voltage commutator consisting of D901A to D, C906A and C906B so that the same voltage as at 200V AC is obtained across C906A and C906B at 100V AC.

The operation of IC9001 is explained in reference to Fig. 2.

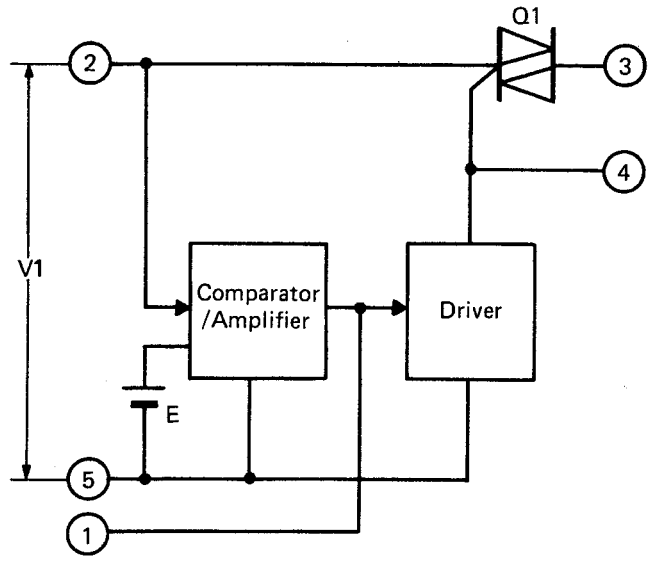
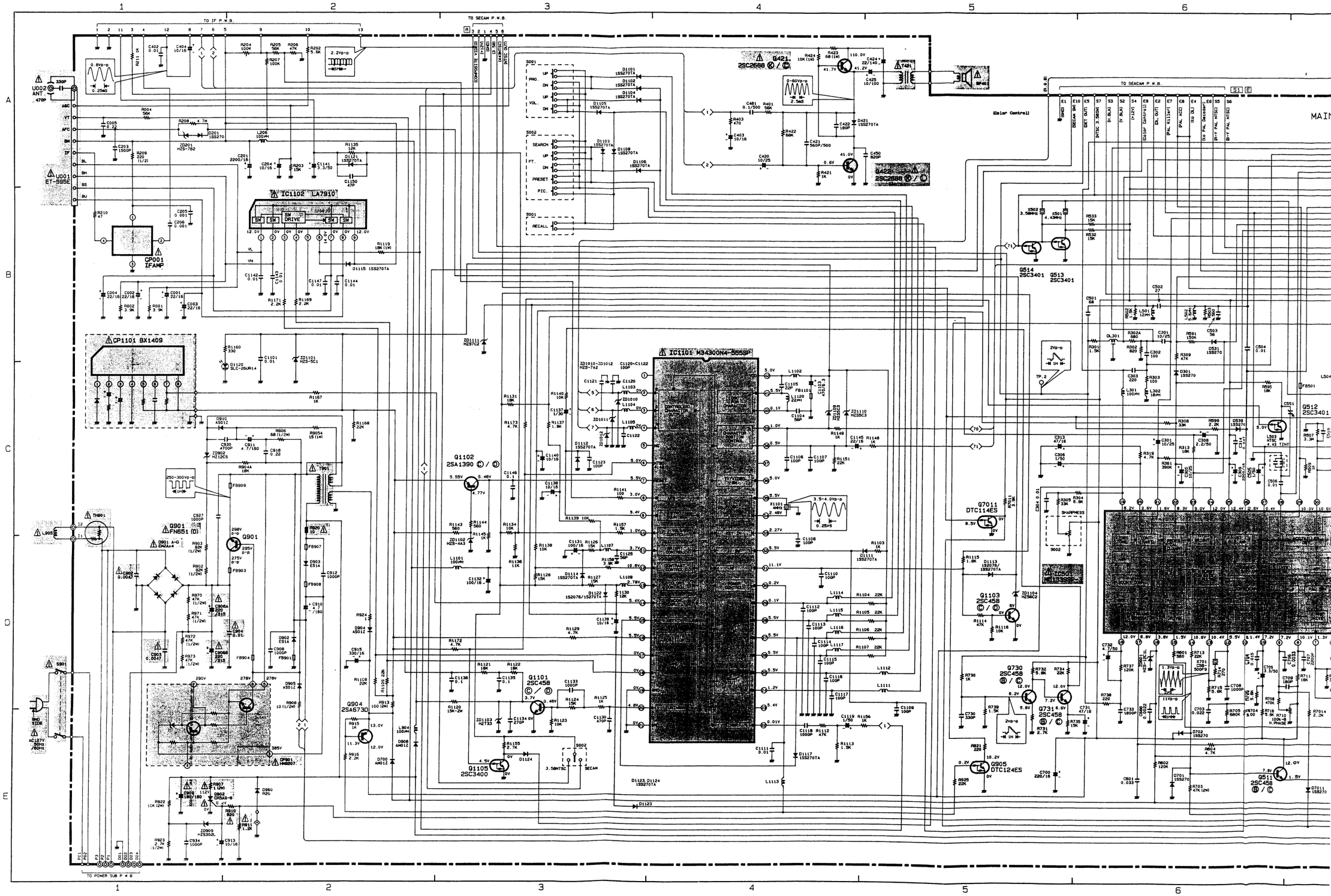


Fig. 2

Fig. 2 is an internal block diagram of IC9001, IC9001 compares and amplifies DC voltage V1 (which is proportional to the AC input voltage) and internal reference voltage E to control the bidirectional thyristor Q1 via the driver. Q1 is switched on at low AC input voltage and is switched off at high AC input voltage. Q1 is switched at about 145V AC of the AC input voltage.

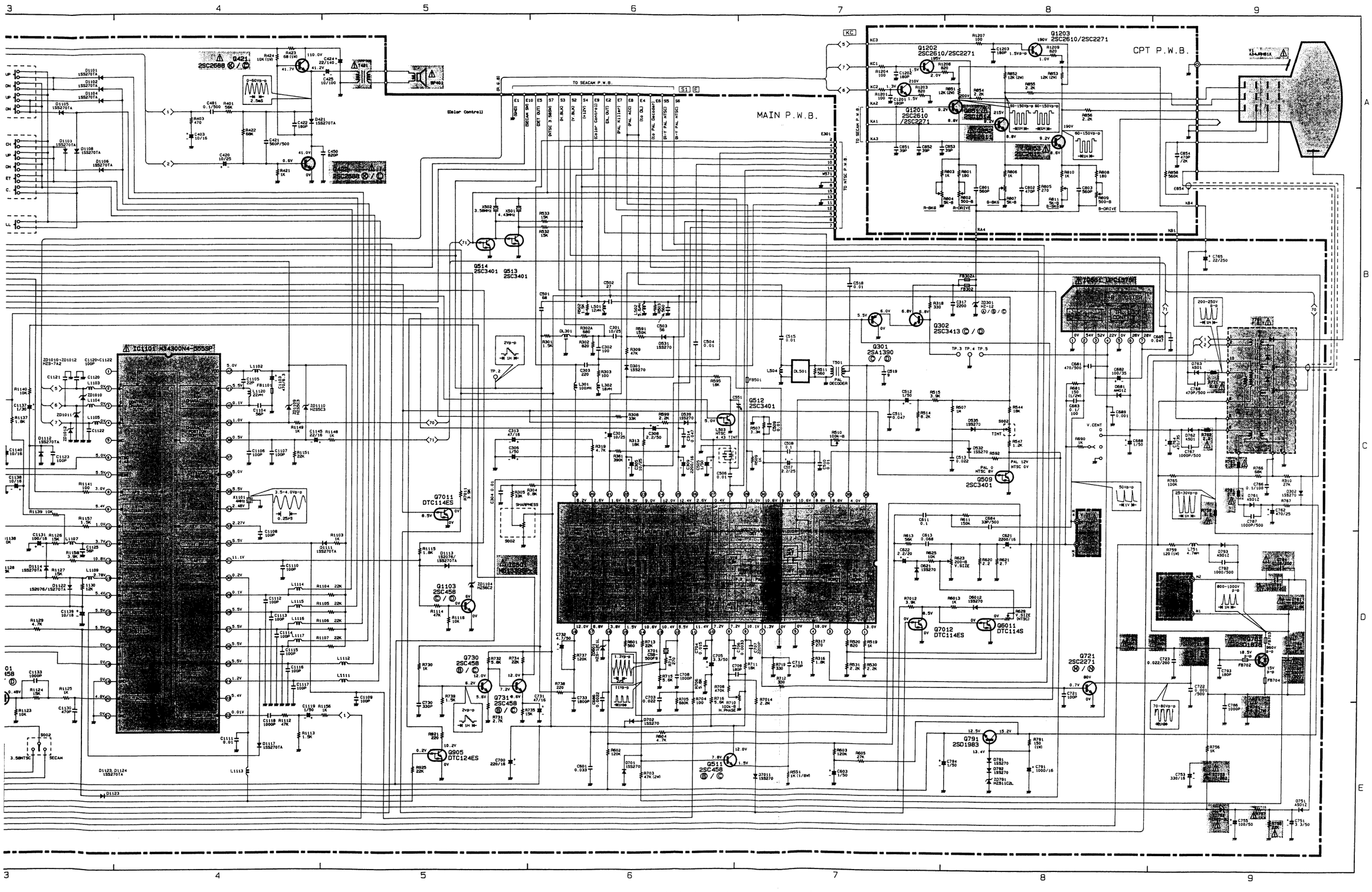
BASIC CIRCUIT DIAGRAM



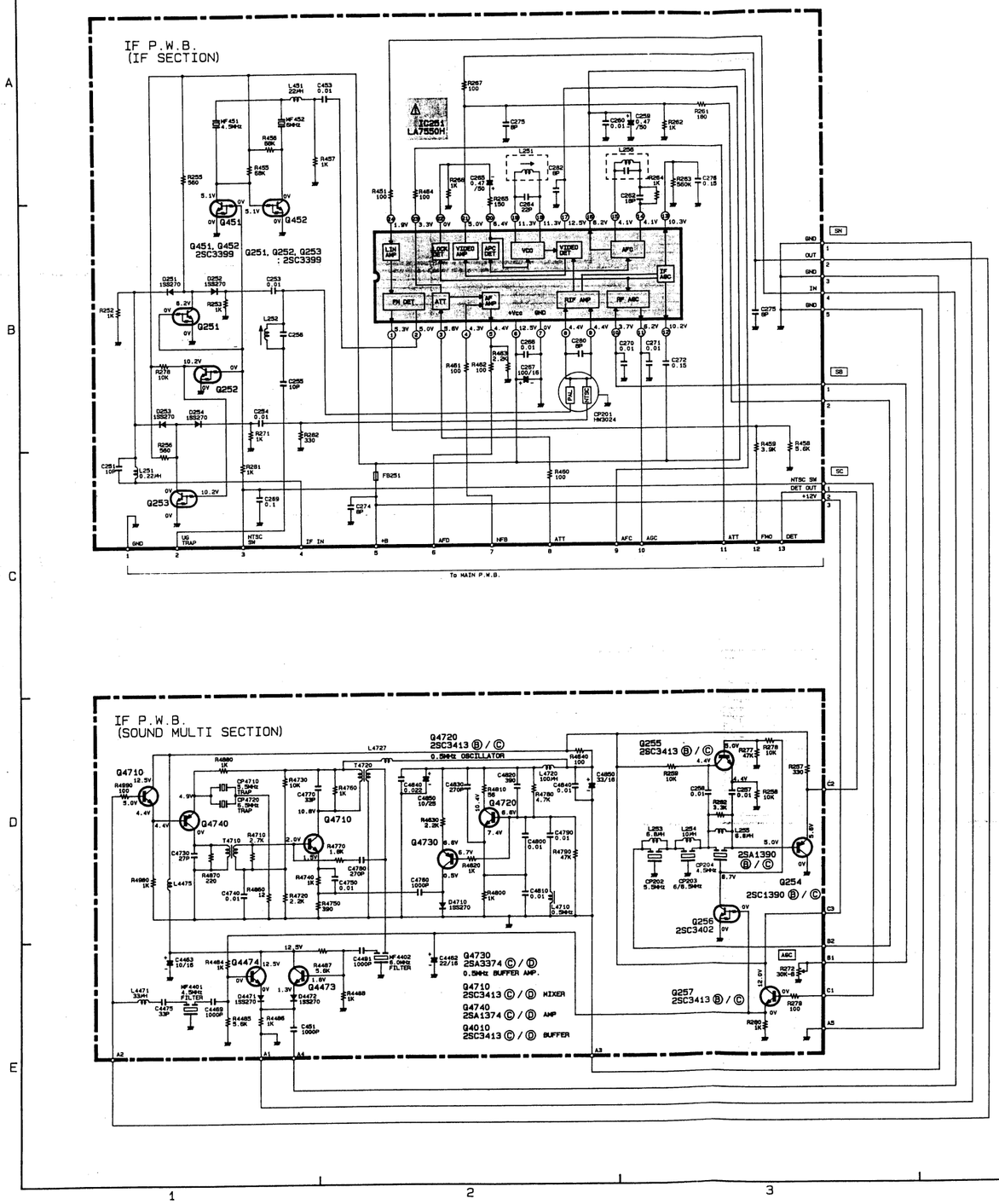
- Since this is a basic circuit diagram, the
- All DC voltage to be measured with a t
  Voltage taken on a complex color bar s

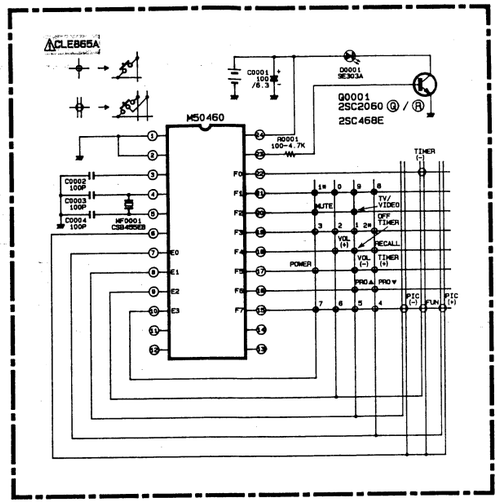
BASIC CIRCUIT DIAGRAM

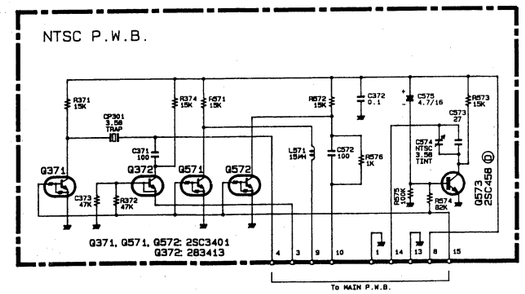
PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver though improper servicing.

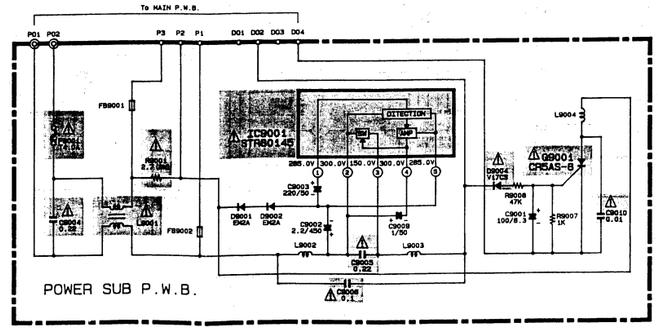


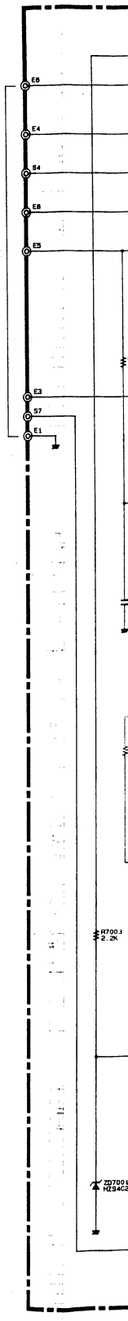
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V).
  Voltage taken on a complex color bar signal including a standard color bar signal.











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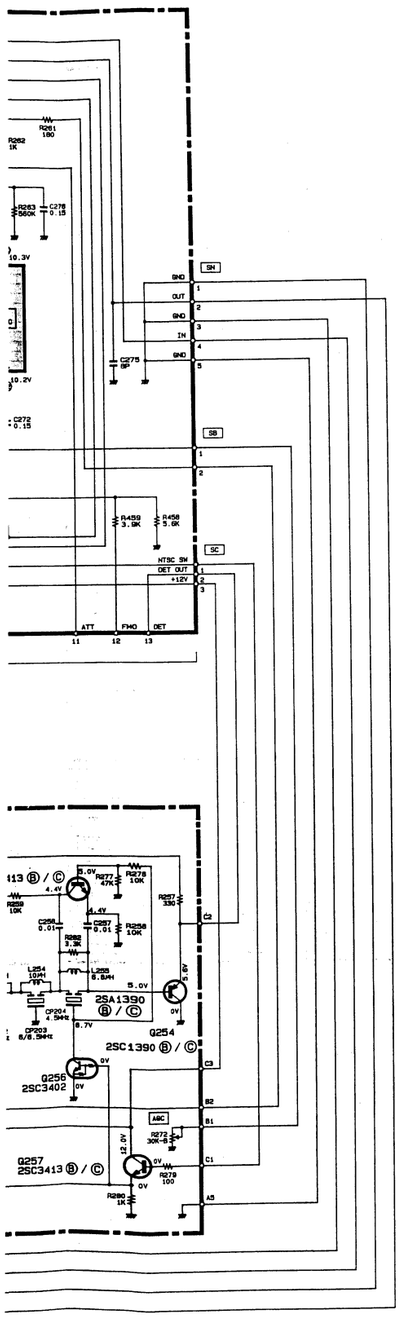
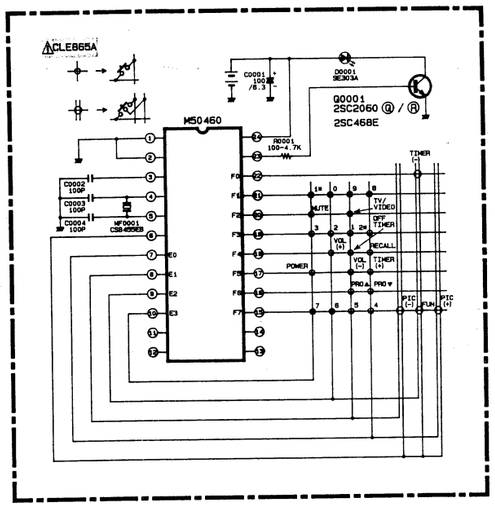
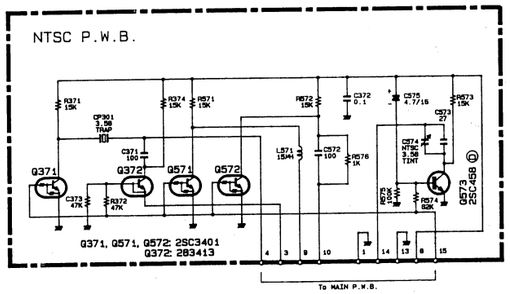
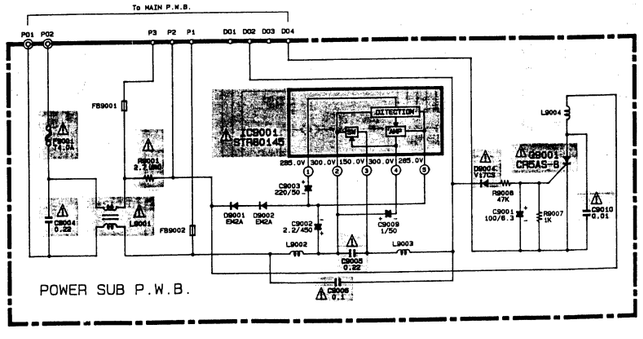
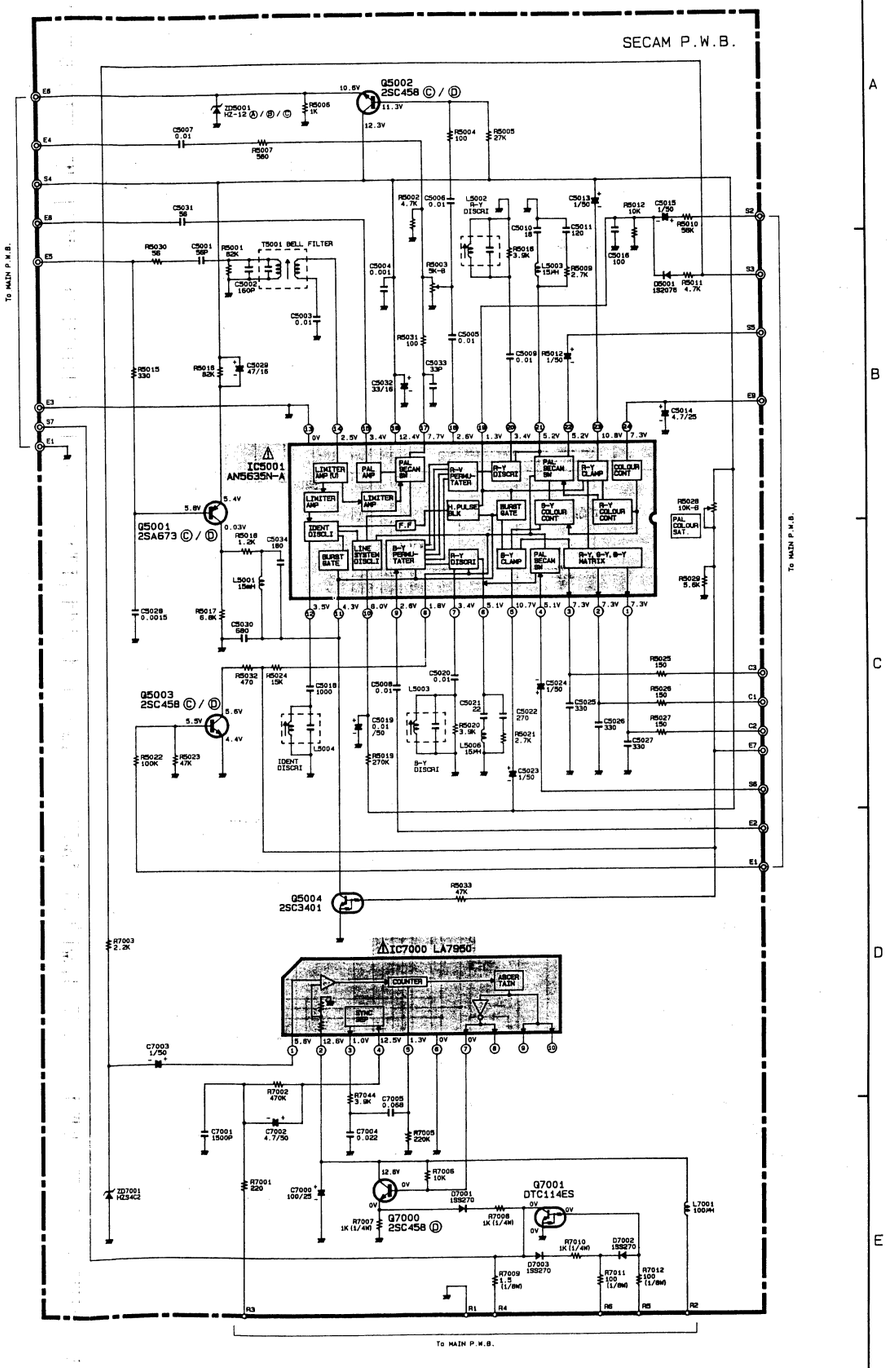




REMOTECONTROL CIRCUIT DIAGRAM





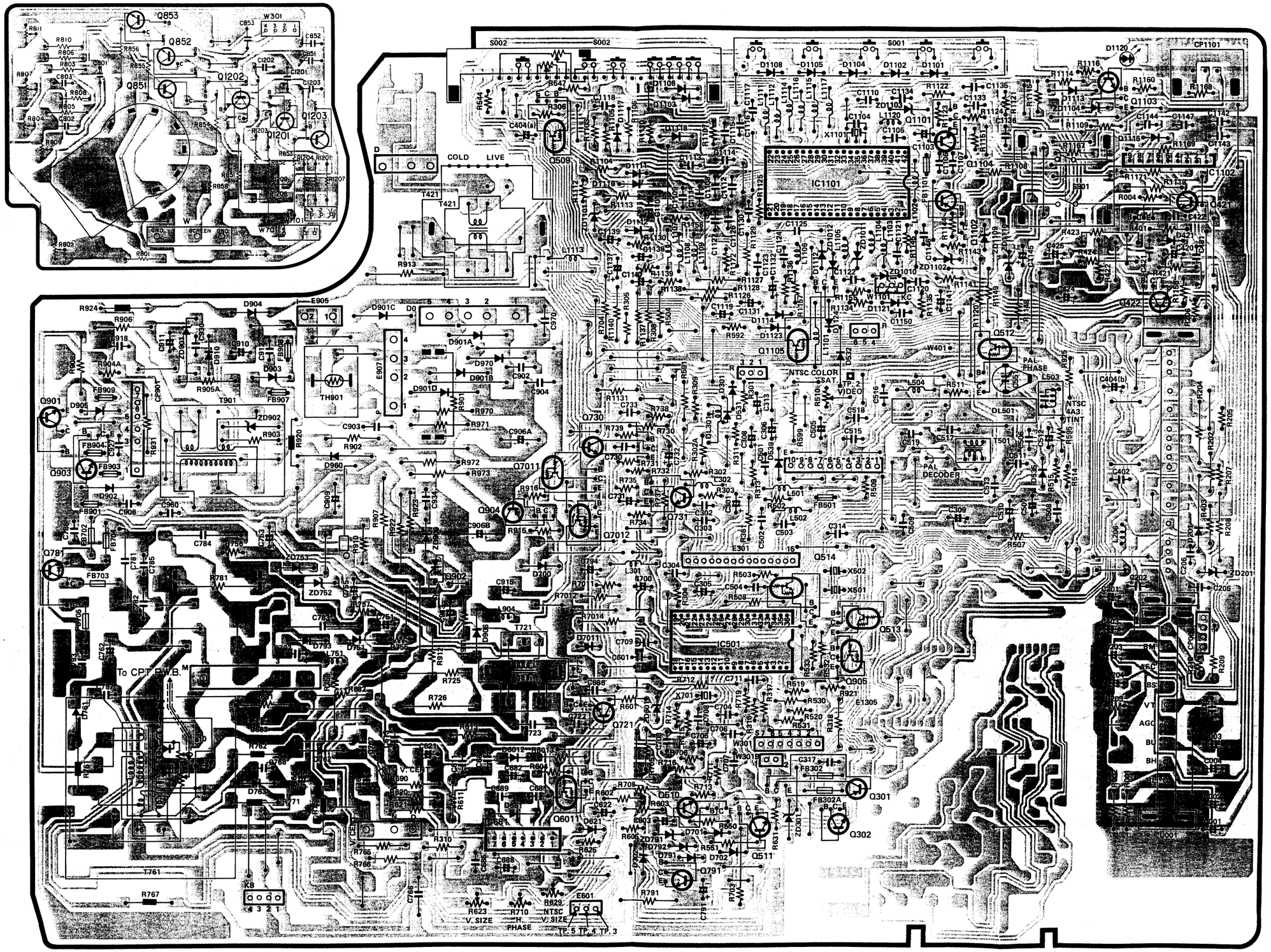


- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V).
  Voltage taken on a complex color bar signal including a standard color bar signal.

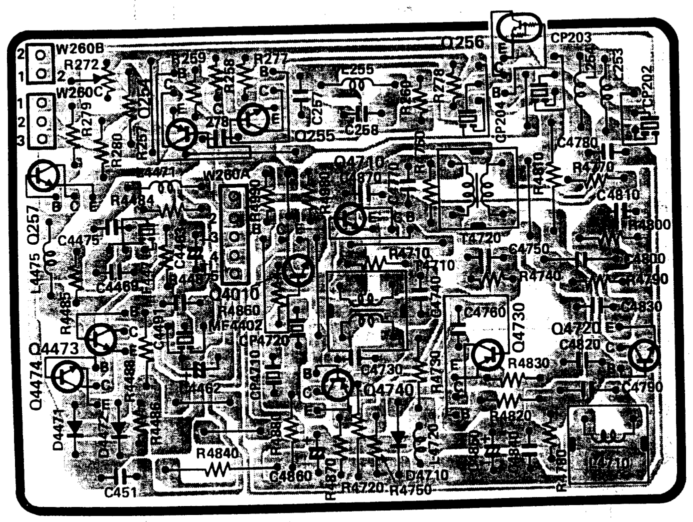
PRINTED WIRING BOARD

CPT P.W.B.

MAIN P.W.B.



IF P.W.B. (SOUND MULTI SECTION)


W260B
W260C
W260A
R272
R279
R280
R269
R277
R278
C255
C257
C258
Q255
Q256
Q257
CP203
CP202
CP204
Q4710
Q4010
Q4473
Q4474
Q4720
Q4730
Q4740
T4720
R4484
R4485
R4488
R4486
R4860
R4840
R4830
R4820
R4810
R4770
R4740
R4710
R4730
R4720
R4750
C4475
C4469
C4491
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C4820
C4760
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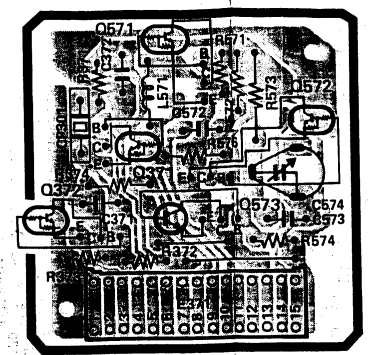
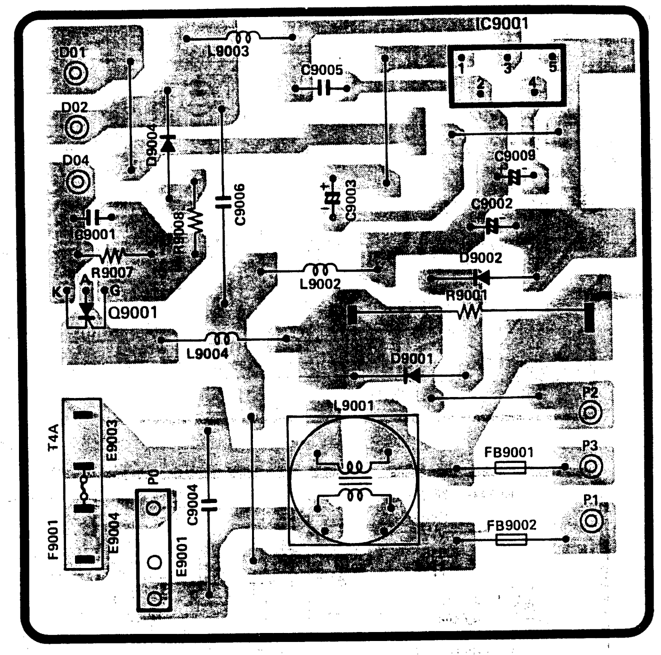
D4710
MF4402
CP4720

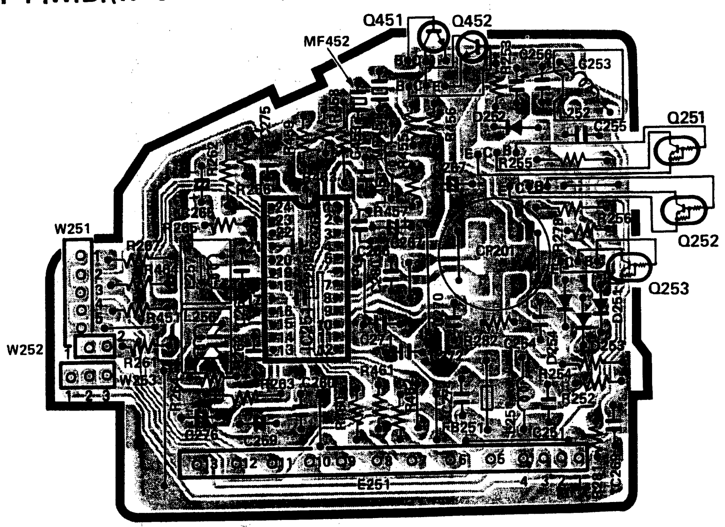
NTSC P.W.B.



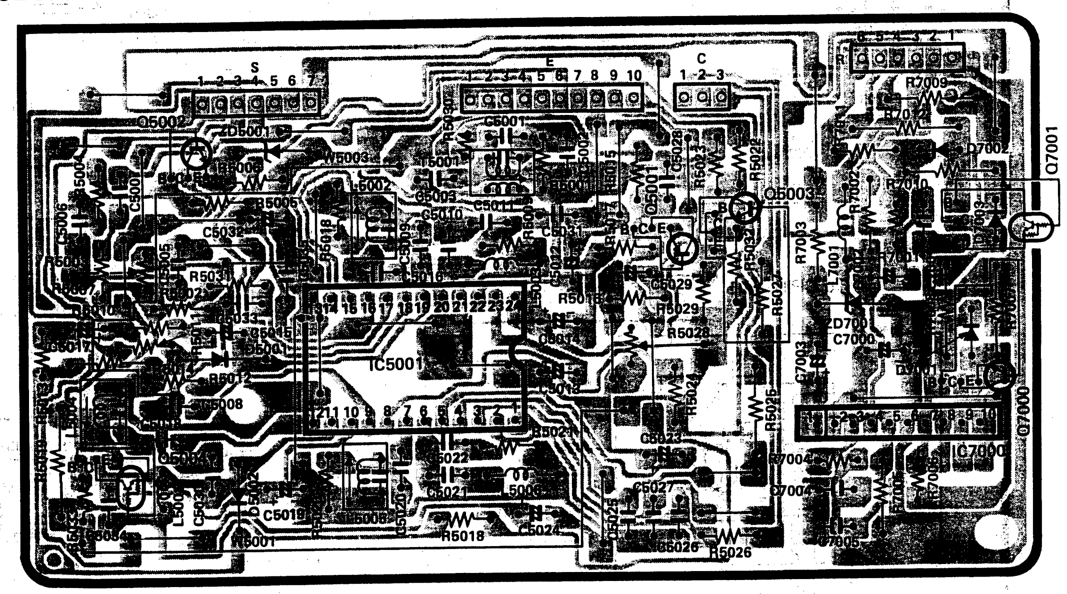
POWER SUB P.W.B.



IF P.W.B. (IF SECTION)



SECAM P.W.B.


S
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Q5002
ZD5001
W5003
T5001
L5002
C5001
C5003
C5010
C5011
C5031
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R5031
C5033
C5015
D5001
R5012
C5008
IC5001
C5019
R5001
C5029
R5029
R5028
Q5001
Q5003
C5023
C5022
C5021
L5006
C5024
R5018
C5025
C5027
C5026
R5026
R5021
C5014
C5018
R7009
R7012
D7002
Q7001
R7010
R7003
L7001
ZD7001
C7000
C7003
D7001
Q7000
IC7000
R7004
C7004
C7005

REPLACEMENT PARTS LIST

PRODUCT SAFETY NOTE: Components marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

ABBREVIATIONS:
Capacitors·····CD: Ceramic disk, PF: Polyester film, EL: Electrolytic, PP: Polypropylene, PR: Paper, TA: Tantalum, TM: Trimmer.
Resistors·····CF: Carbon film, CC: Carbon composition, MF: Metal oxide film, VR: Variable resistor, WW: Wire would, FR: Fuse resistor, MG: Metal glazed.
Semiconductor····TR: Transistor, DI: Diode, ZD: Zener diode, VA: Varistor, TH: Thermistor, IC: IC

SYMBOL NO.	PART NO.	DESCRIPTION
CAPACITORS		
C001	02529435	EL 22MF 16V
C002	02529435	EL 22MF 16V
C003	02529435	EL 22MF 16V
C004	02529435	EL 22MF 16V
C005	0276271	PF 0.22MF 50V ±10%
C1101	02770135	PF 0.01MF ±10% 50V
C1103	0252913	EL 470MF 6.3V
C1104	02464585	CD 56PF ±5% 50V
C1105	02486685	CD 22PF ±5% 50V
C1106	02486845	CD 100PF ±5% 50V
C1107	02486845	CD 100PF ±5% 50V
C1108	02486845	CD 100PF ±5% 50V
C1109	02486845	CD 100PF ±5% 50V
C1110	02486845	CD 100PF ±5% 50V
C1111	02770015	PF 1000PF ±10% 50V
C1112	02486845	CD 100PF ±5% 50V
C1113	02486845	CD 100PF ±5% 50V
C1114	02486845	CD 100PF ±5% 50V
C1115	02486845	CD 100PF ±5% 50V
C1116	02486845	CD 100PF ±5% 50V
C1117	02486845	CD 100PF ±5% 50V
C1118	02770015	PF 1000PF ±10% 50V
C1119	0252974	EL 1MF 50V
C1120	02486845	CD 100PF ±5% 50V
C1121	02486845	CD 100PF ±5% 50V
C1122	02486845	CD 100PF ±5% 50V
C1123	02486845	CD 100PF ±5% 50V
C1125	0247961	CD 56PF ±5% 50V
C1130	02490935	CD 470PF ±5% 50V
C1131	02529465	EL 100MF 16V
C1132	02529465	EL 100MF 16V
C1133	02770015	PF 1000PF ±10% 50V
C1134	02486945	CD 270PF ±5% 50V
C1135	02747755	PF 0.1MF ±10% 50V
C1136	02747755	PF 0.1MF ±10% 50V
C1137	0252974	EL 1MF 50V
C1138	02529425	EL 10MF 16V
C1139	02529425	EL 10MF 16V
C1140	02529425	EL 10MF 16V
C1141	0252976	EL 3.3MF 50V
C1142	02441715	CD 0.01MF +80−20% 50V
C1143	02441715	CD 0.01MF +80−20% 50V
C1144	02441715	CD 0.01MF +80−20% 50V
C1145	0252979	EL 22MF 50V
C1146	02747755	PF 0.1MF ±10% 50V
C1147	02441715	CD 0.01MF +80−20% 50V
C1150	02486765	CD 47PF ±5% 50V
C1201	02441165	CD 180PF ±10% 50V
C1202	02441165	CD 180PF ±10% 50V
C1203	02441165	CD 180PF ±10% 50V
C201	0252951	EL 2200MF 16V
C205	02770015	PF 1000PF ±10% 50V
C206	02770015	PF 1000PF ±10% 50V
C251	02486405	CD 150PF ±0.25PF 50V
C253	02770135	PF 0.01MF ±10% 50V
C254	02770135	PF 0.01MF ±10% 50V
C255	02464205	CD 10PF ±0.5% 50V
C256	02464645	CD 100PF ±5% 50V
C257	02770135	PF 0.01MF ±10% 50V
C258	02770135	PF 0.01MF ±10% 50V
C259	0252973	EL 0.47MF 50V
C260	02770135	PF 0.01MF ±10% 50V
C262	02464465	CD 18PF ±5% 50V
C264	02464485	CD 22PF ±5% 50V
C265	0252973	EL 0.47MF 50V
C266	02529465	EL 100MF 16V
C269	02770135	PF 0.01MF ±10% 50V
C270	02770135	PF 0.01MF ±10% 50V
C271	02770135	PF 0.01MF ±10% 50V
C272	0276270	PF 0.15MF ±10% 50V
C274	0248638	CD 8PF ±0.25PF 50V
C275	0248638	CD 8PF ±0.25PF 50V
C276	0276269	PF 0.1MF ±10% 50V
C278	02529425	EL 10MF 16V
C280	0248638	CD 8PF ±0.25PF 50V
C281	02770015	PF 1000PF ±10% 50V
C282	0248638	CD 8PF ±0.25PF 50V
C301	0252960	EL 10MF 25V
C302	02486845	CD 100PF ±5% 50V
C303	02486925	CD 220PF ±5% 50V
C304	02770135	PF 0.01MF ±10% 50V
C305	02510905	EL 10MF ±20% 25V
C306	0252974	EL 1MF 50V
C308	0252975	EL 2.2MF 50V
C309	0252951	EL 2200MF 16V
C313	02529455	EL 47MF 16V

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SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
C317	0244104	CD 1800PF ±10% 50V	C5020	02770135	PF 0.01MF ±10% 50V
C371	02486845	CD 100PF ±5% 50V	C5021	02486685	CD 22PF ±5% 50V
C372	02747755	PF 0.1MF ±10% 50V	C5022	02486945	CD 270PF ±5% 50V
C401	02798595	PF 0.1MF ±10% 100V	C5023	0252974	EL 1MF 50V
C402	0274665	PF 0.015MF 50V	C5024	0252974	EL 1MF 50V
C403	02529425	EL 10MF 16V	C5025	02441135	CD 330PF ±10% 50V
C404	02529425	EL 10MF 16V	C5026	02441135	CD 330PF ±10% 50V
C420	0252960	EL 10MF 25V	C5027	02441135	CD 330PF ±10% 50V
C421	02435105	CD 560PF ±10% 500V	C5028	02441135	CD 330PF ±10% 50V
C422	02435045	CD 180PF ±10% 500V	C5029	02529455	EL 47MF 16V
C424	02534575	EL 22MF 160V	C503	02486845	CD 100PF ±5% 50V
C425	0253916	EL 10MF 100V	C5030	02441175	CD 680PF ±10% 50V
C4462	02529435	EL 22MF 16V	C5031	02486785	CD 56PF ±5% 50V
C4463	02529425	EL 10MF 16V	C5032	02529441	EL 33MF 16V
C4469	02770015	PF 1000PF ±10% 50V	C5033	02486725	CD 33PF ±5% 50V
C4475	02486725	CD 33PF ±5% 50V	C5034	02441165	CD 180PF ±10% 50V
C4491	02770015	PF 1000PF ±10% 50V	C5035	02770255	PF 0.1MF ±10% 50V
C451	02770135	PF 0.01MF ±10% 50V	C504	02770135	PF 0.01MF ±10% 50V
C453	02770135	PF 0.01MF ±10% 50V	C505	0252974	EL 1MF 50V
C4730	02467105	CD 27PF ±5% 50V	C506	02770135	PF 0.01MF ±10% 50V
C4740	02441715	CD 0.01MF +80−20% 50V	C507	0251073	EL 2.2MF 16V
C4750	02441715	CD 0.01MF +80−20% 50V	C508	02747755	PF 0.1MF ±10% 50V
C4760	02441395	CD 1000PF ±10% 50V	C509	02770135	PF 0.01MF ±10% 50V
C4770	02467125	CD 33PF ±5% 50V	C510	02770135	PF 0.01MF ±10% 50V
C4780	02441365	CD 270PF ±10% 50V	C511	02747715	PF 0.047MF ±10% 50V
C4790	0276269	PF 0.1MF ±10% 50V	C512	0252974	EL 1MF 50V
C4800	02999145	PP 0.01MF ±10% 630V	C513	02746671	PF 0.022MF ±5% 50V
C4810	02770135	PF 0.01MF ±10% 50V	C515	02770135	PF 0.01MF ±10% 50V
C4820	02441195	CD 390PF ±10% 50V	C518	02770135	PF 0.01MF ±10% 50V
C4830	02441365	CD 270PF ±10% 50V	C519	0248639	CD 9PF ±0.25PF 50V
C4840	02441715	CD 0.01MF +80−20% 50V	C551	27846955	TRIMMER CAPACITOR 50PF
C4850	02529441	EL 33MF 16V	C572	02486845	CD 100PF ±5% 50V
C4860	02529425	EL 10MF 16V	C573	0246450	CD 27PF ±5% 50V
C4870	02747675	PF 0.022MF ±10% 50V	C574	27846955	TRIMMER CAPACITOR 50PF
C5001	02486785	CD 56PF ±5% 50V	C575	02529435	EL 22MF 16V
C5002	0248107	CD 220PF ±5% 50V	C601	02768295	PF 0.033MF ±5% 50V
C5003	02770135	PF 0.01MF ±10% 50V	C603	0252974	EL 1MF 50V
C5005	02770135	PF 0.01MF ±10% 50V	C611	0274675	PF 0.1MF ±5% 50V
C5006	02770135	PF 0.01MF ±10% 50V	C613	02746735	PF 0.068MF ±5% 50V
C5007	02770135	PF 0.01MF ±10% 50V	C621	0252951	EL 2200MF 16V
C5008	02770135	PF 0.01MF ±10% 50V	C622	0292718	TA 2.2MF 20V
C5009	02770135	PF 0.01MF ±10% 50V	C681	02435091	CD 470PF ±10% 500V
C501	02486925	CD 220PF ±5% 50V	C682	0255006	EL 100MF 31.5V
C5010	02486665	CD 18PF ±5% 50V	C683	02798595	PF 0.1MF ±10% 100V
C5011	02486865	CD 120PF ±5% 50V	C684	02478825	CD 33PF ±10% 500V
C5012	0252974	EL 1MF 50V	C685	02747715	PF 0.047MF ±10% 50V
C5013	0252974	EL 1MF 50V	C686	02770055	PF 2200PF ±10% 50V
C5014	0252959	EL 4.7MF 25V	C688	0252739	EL 1MF DC50WV
C5015	0252974	EL 1MF 50V	C689	02770015	PF 1000PF ±10% 50V
C5016	02486845	CD 100PF ±5% 50V	C700	0252947	EL 220MF 16V
C5018	02441395	CD 1000PF ±10% 50V	C7000	02529465	EL 100MF 16V
C5019	0252973	EL 0.47MF 50V	C7001	02441395	CD 1000PF ±10% 50V
C502	02486785	CD 56PF ±5% 50V	C7002	0252977	EL 4.7MF 50V

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SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
R1139	01870895	CF 10K OHM ±5% 1/16W	R278	01870895	CF 10K OHM ±5% 1/16W
R1140	01870895	CF 10K OHM ±5% 1/16W	R279	01870415	CF 100 OHM ±5% 1/16W
R1141	01870415	CF 100 OHM ±5% 1/16W	R280	01870655	CF 1K OHM ±5% 1/16W
R1143	01870595	CF 560 OHM ±5% 1/16W	R281	01870655	CF 1K OHM ±5% 1/16W
R1144	01870595	CF 560 OHM ±5% 1/16W	R282	01000535	CF 330 OHM ±5% 1/8W
R1145	01870655	CF 1K OHM ±5% 1/16W	R283	01870895	CF 10K OHM ±5% 1/16W
R1148	01000655	CF 1K OHM ±5% 1/8W	R286	01000775	CF 3.3K OHM ±5% 1/8W
R1149	01870655	CF 1K OHM ±5% 1/16W	R301	01870695	CF 1.5K OHM ±5% 1/16W
R1151	01870975	CF 22K OHM ±5% 1/16W	R302	01870635	CF 820 OHM ±5% 1/16W
R1155	01870735	CF 2.2K OHM ±5% 1/16W	R302A	01870615	CF 680 OHM ±5% 1/16W
R1156	01870655	CF 1K OHM ±5% 1/16W	R303	01870415	CF 100 OHM ±5% 1/16W
R1157	01870695	CF 1.5K OHM ±5% 1/16W	R304	01870855	CF 6.8K OHM ±5% 1/16W
R1158	01870795	CF 3.9K OHM ±5% 1/16W	R305	01871015	CF 33K OHM ±5% 1/16W
R1160	01870535	CF 330 OHM ±5% 1/16W	R308	01871015	CF 33K OHM ±5% 1/16W
R1167	01870655	CF 1K OHM ±5% 1/16W	R309	01871055	CF 47K OHM ±5% 1/16W
R1168	01870975	CF 22K OHM ±5% 1/16W	R310	01000995	CF 27K OHM ±5% 1/8W
R1169	01870735	CF 2.2K OHM ±5% 1/16W	R313	01870955	CF 18K OHM ±5% 1/16W
R1171	01870735	CF 2.2K OHM ±5% 1/16W	R316	01870715	CF 1.8K OHM ±5% 1/16W
R1172	01870855	CF 6.8K OHM ±5% 1/16W	R317	01870515	CF 270 OHM ±5% 1/16W
R1173	01870815	CF 4.7K OHM ±5% 1/16W	R318	01141435	CF 330 OHM ±5% 1/4W
R1201	01000415	CF 100 OHM ±5% 1/8W	R319	01870815	CF 4.7K OHM ±5% 1/16W
R1203	01000635	CF 820 OHM ±5% 1/8W	R361	01001275	CF 390K OHM ±5% 1/8W
R1204	01000415	CF 100 OHM ±5% 1/8W	R371	01871135	CF 100K OHM ±5% 1/16W
R1206	01000635	CF 820 OHM ±5% 1/8W	R372	01871055	CF 47K OHM ±5% 1/16W
R1207	01000415	CF 100 OHM ±5% 1/8W	R373	01871055	CF 47K OHM ±5% 1/16W
R1209	01000635	CF 820 OHM ±5% 1/8W	R374	01871135	CF 100K OHM ±5% 1/16W
R202	01870835	CF 5.6K OHM ±5% 1/16W	R401	01001075	CF 56K OHM ±5% 1/8W
R203	01870935	CF 15K OHM ±5% 1/16W	R403	01000575	CF 470 OHM ±5% 1/8W
R204	01871135	CF 100K OHM ±5% 1/16W	R421	01000655	CF 1K OHM ±5% 1/8W
R205	01871075	CF 56K OHM ±5% 1/16W	R422	01001095	CF 68K OHM ±5% 1/8W
R206	01871055	CF 47K OHM ±5% 1/16W	R423	01100117	MF 68 OHM ±5% 1W
R207	01871135	CF 100K OHM ±5% 1/16W	R424	01101695	MF 10K OHM ±5% 1W
R208	01795385	MG 4.7M OHM ±5% 1/8W	R4484	01870655	CF 1K OHM ±5% 1/16W
R209	01137335	CF 2200 HM ±5% 1/2W	R4485	01870835	CF 5.6K OHM ±5% 1/16W
R210	01000335	CF 47 OHM ±5% 1/8W	R4486	01870655	CF 1K OHM ±5% 1/16W
R211	01000655	CF 1K OHM ±5% 1/8W	R4487	01870835	CF 5.6K OHM ±5% 1/16W
R252	01870655	CF 1K OHM ±5% 1/16W	R4488	01870655	CF 1K OHM ±5% 1/16W
R253	01870655	CF 1K OHM ±5% 1/16W	R451	01870415	CF 100 OHM ±5% 1/16W
R254	01870655	CF 1K OHM ±5% 1/16W	R455	01871095	CF 68K OHM ±5% 1/16W
R255	01000595	CF 560 OHM ±5% 1/8W	R456	01871095	CF 68K OHM ±5% 1/16W
R256	01000595	CF 560 OHM ±5% 1/8W	R457	01870655	CF 1K OHM ±5% 1/16W
R257	01000575	CF 470 OHM ±5% 1/8W	R458	01870835	CF 5.6K OHM ±5% 1/16W
R258	01870895	CF 10K OHM ±5% 1/16W	R459	01870795	CF 3.9K OHM ±5% 1/16W
R259	01871055	CF 47K OHM ±5% 1/16W	R460	01870415	CF 100 OHM ±5% 1/16W
R260	01870895	CF 10K OHM ±5% 1/16W	R461	01870415	CF 100 OHM ±5% 1/16W
R261	01870475	CF 180 OHM ±5% 1/16W	R462	01870415	CF 100 OHM ±5% 1/16W
R262	01870655	CF 1K OHM ±5% 1/16W	R463	01870735	CF 2.2K OHM ±5% 1/16W
R264	01870655	CF 1K OHM ±5% 1/16W	R464	01000415	CF 100 OHM ±5% 1/8W
R265	01870455	CF 150 OHM ±5% 1/6W	R4710	01870755	CF 2.7K OHM ±5% 1/16W
R266	01870655	CF 1K OHM ±5% 1/16W	R4720	01870735	CF 2.2K OHM ±5% 1/16W
R267	01870415	CF 100 OHM ±5% 1/16W	R4730	01870895	CF 10K OHM ±5% 1/16W
R272	0150158	VR 30K OHM-B RV-6	R4740	01870655	CF 1K OHM ±5% 1/16W
R277	01871055	CF 47K OHM ±5% 1/16W	R4750	01870555	CF 390 OHM ±5% 1/16W

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SYMBOL NO.	PART NO.	DESCRIPTION
C7003	0252974	EL 1MF 50V
C7004	02747675	PF 0.022MF ±10% 50V
C7005	02746735	PF 0.068MF ±5% 50V
C703	02747675	PF 0.022MF ±10% 50V
C704	02747655	PF 0.015MF ±10% 50V
C705	0252976	EL 3.3MF 50V
C706	02747575	PF 3300PF ±10% 50V
C707	02746555	PF 2200PF ±10% 50V
C708	0244104	CD 1800PF ±10% 50V
C709	02441165	CD 180PF ±10% 50V
C711	02441185	CD 470PF ±10% 50V
C721	02486845	CD 100PF ±5% 50V
C722	02445015	CD 1000PF ±10% 500V
C723	02999185	PP 0.022MF ±10% 200V
C730	02486845	CD 100PF ±5% 50V
C731	02529455	EL 47MF 16V
C732	0252977	EL 4.7MF 50V
C733	0244104	CD 1800PF ±10% 50V
C751	0258106	EL 3.3MF 50V
C753	0254019	EL 330MF 10V
C755	0252982	EL 100MF 50V
C762	0254522	EL 470MF 25V
C764	0253932	EL 470MF 25V
C765	0255526	EL 22MF 250V
C766	02798595	PF 0.1MF ±10% 100V
C767	02445015	CD 1000PF ±10% 500V
C768	0243509	CD 470PF ±10% 500V
⚠C781	0299732	PP 0.0062MF ±5% 1.6KV
⚠C782	0249491	CD 470PF ±10% 2.5KV
⚠C783	02999305	PP 0.22MF ±10% 200V
⚠C784	02999295	PP 0.18MF ±10% 200V
⚠C785	02445075	CD 3300PF ±10% 500V
C786	02441395	CD 1000PF ±10% 50V
C787	02445015	CD 1000PF ±10% 500V
C791	02529501	EL 1000MF 16V
C792	02445015	CD 1000PF ±10% 500V
C793	02435045	CD 180PF ±10% 500V
C794	0252974	EL 1MF 50V
C801	02441155	CD 560PF ±10% 50V
C802	02441155	CD 560PF ±10% 50V
C803	02441155	CD 560PF ±10% 50V
C851	02486745	CD 39PF ±5% 50V
C852	02486745	CD 39PF ±5% 50V
C853	02486745	CD 39PF ±5% 50V
C854	0244202	CD 470PF ±10% 2KV
C9001	02747715	PF 0.047MF ±10% 50V
C9002	0253485	EL 2.2MF 450V
C9003	0252983	EL 220MF 50V
⚠C9004	0279698	PLASTIC CAPACITOR
⚠C9005	0277698	PLASTIC CAPACITOR
⚠C9006	0279697	PLASTIC CAPACITOR
C9009	0252974	EL 1MF 50V
⚠C9010	0249476	CD 0.01MF +80−20%
⚠C902	0249495	CD 4700PF +80−20%
⚠C903	0249495	CD 4700PF +80−20%
⚠C904	0249496	CD 0.01MF −80−20%
⚠C906A	0259481	EL 220MF 315V
⚠C906B	0259481	EL 220MF 315V
C908	02445015	CD 1000PF ±10% 500V
⚠C909	0259402	EL 180MF 160V
C910	02575375	EL 4.7MF 160V
C911	0253955	EL 4.7MF 160V
C912	02445015	CD 1000PF ±10% 500V
C913	02529425	EL 10MF 16V
C915	0252948	EL 330MF 16V
C918	0276271	PF 0.22MF 50V ±10%
C927	02445015	CD 1000PF ±10% 500V
C930	02441095	CD 4700PF ±10% 50V
C934	02445015	CD 1000PF ±10% 500V
C960	02441055	CD 2200PF ±10% 50V

RESISTORS

R001	01000795	CF 3.9K OHM ±5% 1/8W
R002	01000795	CF 3.9K OHM ±5% 1/8W
R004	01870975	CF 22K OHM ±5% 1/16W
R1103	01870655	CF 1K OHM ±5% 1/16W
R1104	01870975	CF 22K OHM ±5% 1/16W
R1105	01870975	CF 22K OHM ±5% 1/16W
R1106	01870975	CF 22K OHM ±5% 1/16W
R1107	01870975	CF 22K OHM ±5% 1/16W
R1108	01870975	CF 22K OHM ±5% 1/16W
R1109	01870975	CF 22K OHM ±5% 1/16W
R1112	01871055	CF 47K OHM ±5% 1/16W
R1113	01870695	CF 1.5K OHM ±5% 1/16W
R1114	01871055	CF 47K OHM ±5% 1/16W
R1115	01870715	CF 1.8K OHM ±5% 1/16W
R1116	01870895	CF 10K OHM ±5% 1/16W
R1119	01101755	MF 18K OHM ±5% 1W
R1120	01102735	MF 15K OHM ±5% 2W
R1121	01870955	CF 18K OHM ±5% 1/16W
R1122	01870955	CF 18K OHM ±5% 1/16W
R1123	01870895	CF 10K OHM ±5% 1/16W
R1124	01870935	CF 15K OHM ±5% 1/16W
R1125	01870655	CF 1K OHM ±5% 1/16W
R1126	01870935	CF 15K OHM ±5% 1/16W
R1127	01870935	CF 15K OHM ±5% 1/16W
R1128	01870935	CF 15K OHM ±5% 1/16W
R1129	01870815	CF 4.7K OHM ±5% 1/16W
R1130	01870915	CF 12K OHM ±5% 1/16W
R1131	01870955	CF 18K OHM ±5% 1/16W
R1134	01870895	CF 10K OHM ±5% 1/16W
R1135	01870915	CF 12K OHM ±5% 1/16W
R1136	0187090	CF 11K OHM ±5% 1/16W
R1137	01870715	CF 1.8K OHM ±5% 1/16W
R1138	01870895	CF 10K OHM ±5% 1/16W

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SYMBOL NO.	PART NO.	DESCRIPTION
R704	01000415	CF 100 OHM ±5% 1/8W
R705	01001335	CF 680K OHM ±5% 1/8W
R706	01870835	CF 5.6K OHM ±5% 1/16W
R708	01001295	CF 470K OHM ±5% 1/8W
R710	0150117	VR 100K OHM-B
R711	01870955	CF 18K OHM ±5% 1/16W
R712	01000535	CF 330 OHM ±5% 1/8W
R713	01870975	CF 22K OHM ±5% 1/16W
R714	01870515	CF 270 OHM ±5% 1/16W
R715	01870835	CF 5.6K OHM ±5% 1/16W
R716	01870835	CF 5.6K OHM ±5% 1/16W
R719	01870535	CF 330 OHM ±5% 1/16W
⚠R725	01102571	MF 3.3K OHM ±5% 2W
⚠R726	0110253	MF 2.2K OHM ±5% 2W
R730	01870795	CF 3.9K OHM ±5% 1/16W
R731	01870755	CF 2.7K OHM ±5% 1/16W
R732	01870835	CF 5.6K OHM ±5% 1/16W
R734	01870675	CF 1.2K OHM ±5% 1/16W
R735	01870935	CF 15K OHM ±5% 1/16W
R737	01001155	CF 120K OHM ±5% 1/8W
R738	01870495	CF 220 OHM ±5% 1/16W
R739	01870835	CF 5.6K OHM ±5% 1/16W
⚠R755	01870975	CF 22K OHM ±5% 1/16W
R756	01870655	CF 1K OHM ±5% 1/16W
⚠R757	01870655	CF 1K OHM ±5% 1/16W
⚠R758	01195051	FR 2.2 OHM ±5% 1/4W
R759	0110137	MF 470 OHM ±5% 1W
⚠R761	0119690	FR 0.27 OHM ±5% 1W
⚠R762	01195051	FR 2.2 OHM ±5% 1/4W
R765	0114281	CF 100K OHM ±5% 1/4W
R766	01142835	CF 120K OHM ±5% 1/4W
⚠R767	01195041	FR 0.5 OHM ±5% 1/4W
⚠R771	01195051	FR 2.2 OHM ±5% 1/4W
⚠R781	0147630	WW 6.8 OHM ±10% 8W
R791	01101255	MF 150 OHM ±5% 1W
R801	01000475	CF 180 OHM ±5% 1/8W
R802	0150110	VR 500 OHM-B
R803	01000655	CF 1K OHM ±5% 1/8W
R804	0150113	VR 5K OHM-B RS-6
R805	01000515	CF 270 OHM ±5% 1/8W
R806	01000655	CF 1K OHM ±5% 1/8W
R807	0150113	VR 5K OHM-B RS-6
R808	01000475	CF 180 OHM ±5% 1/8W
R809	0150110	VR 500 OHM-B
R810	01000655	CF 1K OHM ±5% 1/8W
R811	0150113	VR 5K OHM-B RS-6
R851	0110271	MF 12K OHM ±5% 2W
R852	0110271	MF 12K OHM ±5% 2W
R853	0110271	MF 12K OHM ±5% 2W
R854	01137585	CF 2.2K OHM ±5% 1/2W
R855	01137585	CF 2.2K OHM ±5% 1/2W
R856	01137585	CF 2.2K OHM ±5% 1/2W
R858	01001335	CF 680K OHM ±5% 1/8W
⚠R9001	01410665	WW 2.7 OHM ±5% 8W
R9007	01000655	CF 1K OHM ±5% 1/8W
R9008	01000655	CF 1K OHM ±5% 1/8W
R902	01137975	CF 82K OHM ±5% 1/2W
R903	01137975	CF 82K OHM ±5% 1/2W
R904A	01000955	CF 18K OHM ±5% 1/8W
R905A	0110101	MF 15 OHM ±5% 1W
R906	01137211	CF 68 OHM ±5% 1/2W
⚠R907	0194068	WW 1 OHM ±5% 2W
R908	01137015	CF 10 OHM ±5% 1/2W
⚠R910	01000635	CF 820 OHM ±5% 1/8W
⚠R911	01000675	CF 1.2K OHM ±5% 1/8W
R913	01102215	MF 100 OHM ±5% 2W
R915	01870655	CF 1K OHM ±5% 1/16W
R916	01870735	CF 2.2K OHM ±5% 1/16W
⚠R920	01195145	FR 10 OHM ±5% 1/4W
R921	01870495	CF 220 OHM ±5% 1/16W
R922	01102695	MF 10K OHM ±5% 2W
R923	01137605	CF 2.7K OHM ±5% 1/2W
R924	01195121	MF 1 OHM ±5% 1W
R925	01870975	CF 22K OHM ±5% 1/16W
R970	01137911	CF 47K OHM ±5% 1/2W
R971	01137911	CF 47K OHM ±5% 1/2W
R972	01137911	CF 47K OHM ±5% 1/2W
R973	01137911	CF 47K OHM ±5% 1/2W

ICs

⚠IC1101	2380112	IC M34300N4-555SP
⚠IC1102	2366621	IC LA7910
⚠IC251	2916682	IC LA7550H
⚠IC5001	2914741	IC AN5635N-A
⚠IC501	2914733	IC HA51339SP-3
⚠IC681	23685015	IC UPC1378H LINEAR
⚠IC7000	2370971	IC LA7950
⚠IC9001	2380681	IC STR80145

TRANSISTORS

Q1101	23205955	TR 2SC458(D)
Q1102	2327753	TR 2SA1390 (C)/(D)
Q1103	2327773	TR 2SC3413 (C)/(D)
Q1105	2324732	TR 2SC3400
Q1201	2324322	TR 2SC2271/2SC2610-05
Q1202	2324322	TR 2SC2271/2SC2610-05
Q1203	2324322	TR 2SC2271/2SC2610-05
Q251	2324733	TR 2SC3399
Q252	2324733	TR 2SC3399
Q253	2324733	TR 2SC3399
Q254	2327752	TR 2SA1390B/C
Q255	2327773	TR 2SC3413 (C)/(D)
Q256	2324731	TR 2SC3402
Q257	2327772	TR 2SC3413 (B)/(C)

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SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
R4760	01870655	CF 1K OHM ±5% 1/16W	R511	01870595	CF 560 OHM ±5% 1/16W
R4770	01870715	CF 1.8K OHM ±5% 1/16W	R514	01870875	CF 8.2K OHM ±5% 1/16W
R4780	01870815	CF 4.7K OHM ±5% 1/16W	R515	01870795	CF 3.9K OHM ±5% 1/16W
R4790	01871055	CF 47K OHM ±5% 1/16W	R519	01870655	CF 1K OHM ±5% 1/16W
R4800	01870655	CF 1K OHM ±5% 1/16W	R520	01870635	CF 820 OHM ±5% 1/16W
R4810	01101155	MF 56 OHM ±5% 1W	R530	01870735	CF 2.2K OHM ±5% 1/16W
R4820	01870655	CF 1K OHM ±5% 1/16W	R531	01870735	CF 2.2K OHM ±5% 1/16W
R4830	01870775	CF 3.3K OHM ±5% 1/16W	R532	01870935	CF 15K OHM ±5% 1/16W
R4840	01101215	MF 100 OHM ±5% 1W	R533	01870935	CF 15K OHM ±5% 1/16W
R4860	0187019	CF 12 OHM ±5% 1/16W	R534	01870655	CF 1K OHM ±5% 1/16W
R4870	01870495	CF 220 OHM ±5% 1/16W	R544	01870955	CF 18K OHM ±5% 1/16W
R4880	01870655	CF 1K OHM ±5% 1/16W	R547	01870675	CF 1.2K OHM ±5% 1/16W
R4980	01870655	CF 1K OHM ±5% 1/16W	R551	01870655	CF 1K OHM ±5% 1/16W
R4990	01870415	CF 100 OHM ±5% 1/16W	R571	01870935	CF 15K OHM ±5% 1/16W
R5001	01870875	CF 8.2K OHM ±5% 1/16W	R572	01870935	CF 15K OHM ±5% 1/16W
R5002	01870815	CF 4.7K OHM ±5% 1/16W	R573	01870935	CF 15K OHM ±5% 1/16W
R5003	01500375	VR 5K OHM-B RS-8	R574	01871115	CF 82K OHM ±5% 1/16W
R5004	01870415	CF 100 OHM ±5% 1/16W	R575	01871135	CF 100K OHM ±5% 1/16W
R5005	01870995	CF 27K OHM ±5% 1/16W	R576	01870655	CF 1K OHM ±5% 1/16W
R5006	01870655	CF 1K OHM ±5% 1/16W	R591	01001175	CF 150K OHM ±5% 1/8W
R5007	01870535	CF 330 OHM ±5% 1/16W	R595	01870955	CF 18K OHM ±5% 1/16W
R5008	01870795	CF 3.9K OHM ±5% 1/16W	R599	01000795	CF 3.9K OHM ±5% 1/8W
R5009	01870755	CF 2.7K OHM ±5% 1/16W	R601	01870595	CF 560 OHM ±5% 1/16W
R501	01000495	CF 220 OHM ±5% 1/8W	R6013	01141615	CF 1K OHM ±5% 1/4W
R5010	01871075	CF 56K OHM ±5% 1/16W	R602	01001155	CF 120K OHM ±5% 1/8W
R5011	01870815	CF 4.7K OHM ±5% 1/16W	R603	01001155	CF 120K OHM ±5% 1/8W
R5012	01870895	CF 10K OHM ±5% 1/16W	R604	01000815	CF 4.7K OHM ±5% 1/8W
R5015	01870695	CF 1.5K OHM ±5% 1/16W	R605	01870995	CF 27K OHM ±5% 1/16W
R5016	01871115	CF 82K OHM ±5% 1/16W	R611	01001175	CF 150K OHM ±5% 1/8W
R5017	01870855	CF 6.8K OHM ±5% 1/16W	R613	01871075	CF 56K OHM ±5% 1/16W
R5018	01870675	CF 1.2K OHM ±5% 1/16W	R620	01140035	CF 2.7 OHM ±5% 1/4W
R5019	0179553	MG 270K OHM ±5% 1/8W	R621	01140035	CF 2.7 OHM ±5% 1/4W
R502	01870695	CF 1.5K OHM ±5% 1/16W	R623	0150109	VR 200 OHM-B RS-6
R5020	01870795	CF 3.9K OHM ±5% 1/16W	R625	01870895	CF 10K OHM ±5% 1/16W
R5021	01870755	CF 2.7K OHM ±5% 1/16W	R629	0150112	VR 2K OHM-B
R5022	01871135	CF 100K OHM ±5% 1/16W	R681	01137295	CF 150 OHM ±5% 1/2W
R5023	01871055	CF 47K OHM ±5% 1/16W	R682	01141615	CF 1K OHM ±5% 1/4W
R5024	01870935	CF 15K OHM ±5% 1/16W	R690	01141615	CF 1K OHM ±5% 1/4W
R5025	01000455	CF 150 OHM ±5% 1/8W	R7001	01870495	CF 220 OHM ±5% 1/16W
R5026	01000455	CF 150 OHM ±5% 1/8W	R7002	01001215	CF 220K OHM ±5% 1/8W
R5027	01000455	CF 150 OHM ±5% 1/8W	R7003	01870735	CF 2.2K OHM ±5% 1/16W
R5028	01500385	VR 10K OHM-B RS-8	R7004	01870795	CF 3.9K OHM ±5% 1/16W
R5029	01870835	CF 5.6K OHM ±5% 1/16W	R7005	01001215	CF 220K OHM ±5% 1/8W
R503	01870655	CF 1K OHM ±5% 1/16W	R7006	01870895	CF 10K OHM ±5% 1/16W
R5030	01000355	CF 56 OHM ±5% 1/8W	R7007	01141615	CF 1K OHM ±5% 1/4W
R5031	01870415	CF 100 OHM ±5% 1/16W	R7008	01141615	CF 1K OHM ±5% 1/4W
R5032	01141475	CF 470 OHM ±5% 1/4W	R7009	01000695	CF 1.5K OHM ±5% 1/8W
R5033	01871055	CF 47K OHM ±5% 1/16W	R7011	01000415	CF 100 OHM ±5% 1/8W
R504	01870935	CF 15K OHM ±5% 1/16W	R7011	01870795	CF 3.9K OHM ±5% 1/16W
R507	01795631	MG 3.3M OHM ±5% 1/8W	R7012	01000415	CF 100 OHM ±5% 1/8W
R508	01795365	MG 1M OHM ±5% 1/8W	R7012	01870795	CF 3.9K OHM ±5% 1/16W
R509	01870675	CF 1.2K OHM ±5% 1/16W	R7014	01795615	MG 2.2M OHM ±5% 1/8W
R510	0150160	VR 10K OHM-B ±30%	R703	01102851	MF 47K OHM ±5% 2W

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SYMBOL NO.	PART NO.	DESCRIPTION
⚠D901D	2342711	DI EM2A
D902	2334581	DI ES1A
D903	2334581	DI ES1A
D904	23394815	DI AS01 (200V)
D905	23394815	DI AS01 (200V)
D906	23394915	DI AM01Z
D910	23394815	DI AS01 (200V)
D960	2342861	ZD R2G
ZD1010	2339852	ZD HZS7-A2
ZD1011	2339852	ZD HZS7-A2
ZD1012	2339852	ZD HZS7-A2
ZD1101	2339837	ZD HZS-5C1
ZD1102	2339823	ZD HZS4-A3
ZD1103	2335991	ZD HZT-33
ZD1104	2339848	ZD HZS-6-C2
ZD1109	2339839	ZD HZS5C3
ZD1110	2339839	ZD HZS5C3
ZD1111	2339857	ZD HZS7C1
ZD201	2339855	ZD HZS7B2
ZD301	2331849	ZD HZ-12(C3)
ZD5001	23311545	ZD HZ12(A)/(B)/(C)
ZD601	2339151	ZD HZS12C1L TA
ZD7001	2339828	ZD HZS4C2
⚠ZD752	2339193	ZD HZS20-3L
⚠ZD753	23318051	ZD HZ6(B)2
ZD791	2339122	ZD HZS11C2L
ZD902	2331849	ZD HZ-12(C3)
ZD909	2339232	ZD HZS30-2L
TRANSFORMERS		
⚠T421	2250515	AUDIO OUTPUT TRANSFORMER
T4710	2141014	SOUND-INPUT TRANSFORMER
T4720	2141014	SOUND-INPUT TRANSFORMER
T5001	2143563	BEL FILTER TRANSFORMER
T501	2143341	7PL COIL
⚠T721	22600215	TRANS HORIZONTAL DRIVE
⚠T761	2434591	FLYBACK TRANSFORMER
⚠T901	2214451	CHOKE TRANSFORMER
FUSES		
⚠F9001	27204045	FUSE 4A
COMPOUND COMPONENTS		
⚠CP001	2786831	PRE-AMP
⚠CP1101	2380021	REMOTE CONTROL RECIEVER BX-1409
CP201	2300344	SAW FILTER HW 3024
CP202	2142243	CERAMIC TRAP
CP203	2143472	CERAMIC TRAP
CP204	21422415	CERAMIC FILTER 4.5MHz
CP301	21615115	COMPOUND COMPONENT
CP4710	2142332	CERAMIC FILTER
CP4720	2142334	CERAMIC TRAP
⚠CP901	2371677	MODULE HM9207
MF4402	2142603	CERAMIC FILTER 6.0MB
MF4471	21426015	CERAMIC FILTER 4.5MHz
MF451	2143571	CERAMIC DISC
MF452	2143572	6.0M CERAMIC DISCRIMINETER
COILS		
L1101	21229565	LA AXIAL COIL 100MH ±10%
L1102	2122929	LAL AXIAL COIL
L1103	21229455	LA AXIAL COIL 15MH ±10%
L1104	2123753	RADIAL COIL
L1105	2123753	RADIAL COIL
L1107	21229565	LA AXIAL COIL 100MH ±10%
L1109	21229565	LA AXIAL COIL 100MH ±10%
L1111	2122929	LAL AXIAL COIL
L1112	2122929	LAL AXIAL COIL
L1113	21229565	LA AXIAL COIL 100MH ±10%
L1114	2122929	LAL AXIAL COIL
L1115	2122929	LAL AXIAL COIL
L1116	2122929	LAL AXIAL COIL
L1117	2122929	LAL AXIAL COIL
L1120	2123755	RADIAL COIL
L206	2123781	FILTER COIL
L251	2122921	LA AXIAL COIL
L252	2142023	TRAP COIL
L253	2122941	LA AXIAL COIL
L254	21229435	LA AXIAL COIL 10MH ±10%
L255	21222411	LA AXIAL COIL 12MH
L256	2143601	FILTER COIL
L257	2143811	HIGH FREQUENCY COIL
L301	21222535	LA AXIAL COIL
L302	21229455	LA AXIAL COIL 15MH ±10%
L4471	21229495	LA AXIAL COIL 33MH ±10%
L4475	21229565	LA AXIAL COIL 100MH ±10%
L451	21229475	LA AXIAL COIL 22MH ±10%
L4710	2160584	BAND-PASS COIL
L4720	2121706	PEAKING COIL 100MH ±10%
L5001	21608315	SETTLE COIL
L5002	2143561	DISCRI COIL
L5003	21229455	LA AXIAL COIL 15MH ±10%
L5004	2143561	DISCRI COIL
L5005	2143561	DISCRI COIL
L5006	21229455	LA AXIAL COIL 15MH ±10%
L501	21229421	LA AXIAL COIL 8.2MH ±10%
L502	21229395	LA AXIAL COIL 5.6MH
L503	2143621	PHASE COIL
L504	2123291	LA AXIAL COIL
L571	21229455	LA AXIAL COIL 15MH ±10%
L7001	21222535	LA AXIAL COIL
L751	2123782	FILTER COIL

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SYMBOL NO.	PART NO.	DESCRIPTION
Q301	2327753	TR 2SA1390 (C)/(D)
Q302	2327773	TR 2SC3413 (C)/(D)
Q371	2324734	TR 2SC3401
Q372	2327773	TR 2SC3413 (C)/(D)
Q4010	2327773	TR 2SC3413 (C)/(D)
⚠Q421	23225625	TR 2SC2688K/L/M
⚠Q422	23225625	TR 2SC2688K/L/M
Q4473	2327773	TR 2SC3413 (C)/(D)
Q4474	2327773	TR 2SC3413 (C)/(D)
Q451	2324733	TR 2SC3399
Q452	2324733	TR 2SC3399
Q4710	2327773	TR 2SC3413 (C)/(D)
Q4720	2327773	TR 2SC3413 (C)/(D)
Q4730	2327761	TR 2SA1374 (C)/(D)
Q4740	2327753	TR 2SA1390 (C)/(D)
Q5001	23206375	TR 2SA673C/D
Q5002	23205955	TR 2SC458(D)
Q5003	23205955	TR 2SC458(D)
Q5004	2324734	TR 2SC3401
Q509	2324734	TR 2SC3401
Q511	2327773	TR 2SC3413 (C)/(D)
Q512	2324734	TR 2SC3401
Q513	2324734	TR 2SC3401
Q514	2324734	TR 2SC3401
Q571	2324734	TR 2SC3401
Q572	2324734	TR 2SC3401
Q573	23205955	TR 2SC458(D)
Q6011	2326872	TR DTC114ES
Q7000	23205955	TR 2SC458(D)
Q7001	2326872	TR DTC114ES
Q7011	2326872	TR DTC114ES
Q7012	2326872	TR DTC114ES
Q721	23219925	TR 2SC2271 (M/N)
Q730	2327773	TR 2SC3413 (C)/(D)
Q731	2327773	TR 2SC3413 (C)/(D)
⚠Q781	2327501	TR 2SD1876
Q791	2323434	TR 2SC1983 O/Y
⚠Q851	2321225	TR 2SC1514
⚠Q852	2326611	TR 2SC2611-06
⚠Q853	2326611	TR 2SC2611-06
⚠Q9001	2326631	TR CR5AS-8
⚠Q901	23284521	TR FN651(O)
⚠Q902	2326631	TR CR5AS-8
Q904	23206355	TR 2SA673D
Q905	2326871	TR DTC124ES

DIODES

D1101	23383215	DI 1SS270TA
D1102	23383215	DI 1SS270TA
D1103	23383215	DI 1SS270TA
D1104	23383215	DI 1SS270TA
D1105	23383215	DI 1SS270TA
D1106	23383215	DI 1SS270TA
D1108	23383215	DI 1SS270TA
D1111	23383215	DI 1SS270TA
D1112	23383215	DI 1SS270TA
D1113	23383215	DI 1SS270TA
D1114	23383215	DI 1SS270TA
D1115	23383215	DI 1SS270TA
D1118	23383215	DI 1SS270TA
D1120	2334671	LED SLC26UR14
D1121	23383215	DI 1SS270TA
D1122	23383215	DI 1SS270TA
D1123	23383215	DI 1SS270TA
D1124	23383215	DI 1SS270TA
D201	23383215	DI 1SS270TA
D251	23383215	DI 1SS270TA
D252	23383215	DI 1SS270TA
D253	23383215	DI 1SS270TA
D254	23383215	DI 1SS270TA
D301	23383215	DI 1SS270TA
D302	23383215	DI 1SS270TA
D421	23383215	DI 1SS270TA
D4471	23383215	DI 1SS270TA
D4472	23383215	DI 1SS270TA
D4710	23383215	DI 1SS270TA
D5001	23303515	DI 1S2076
D531	23383215	DI 1SS270TA
D532	23383215	DI 1SS270TA
D535	23383215	DI 1SS270TA
D539	23383215	DI 1SS270TA
D6012	23383215	DI 1SS270TA
D621	23383215	DI 1SS270TA
D631	23383215	DI 1SS270TA
D681	23394915	DI AM01Z
D700	23394915	DI AM01Z
D7001	23383215	DI 1SS270TA
D7002	23383215	DI 1SS270TA
D7003	23383215	DI 1SS270TA
D701	23383215	DI 1SS270TA
D7011	23383215	DI 1SS270TA
D702	23383215	DI 1SS270TA
D751	23394815	DI AS01 (200V)
D761	23394815	DI AS01 (200V)
D762	23394825	DI AS01 (400V)
D763	23394825	DI AS01 (400V)
D791	23383215	DI 1SS270TA
D792	23383215	DI 1SS270TA
D793	23394815	DI AS01 (200V)
D9001	2342711	DI EM2A
D9002	2342711	DI EM2A
⚠D9004	23314721	DI V-17CS
⚠D901A	2342711	DI EM2A
⚠D901B	2342711	DI EM2A
⚠D901C	2342711	DI EM2A

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SYMBOL NO.	PART NO.	DESCRIPTION
⚠L9001	2121674	LINE FILTER COIL
L9002	21611521	FILTER COIL
L9003	21611521	FILTER COIL
L9004	21611521	FILTER COIL
L904	2123781	FILTER COIL
⚠L905	2163029	DEGAUSSING COIL
MISCELLANEOUS		
	3767111	ANTENNA HOLDER
	41594235	M3x12 SCREW W/WASHER
⚠	2442131	DEFLECTION YOKE
	4520883	M3x12 SCREW WITH WASHER
	88211141	NUT 3
	2750511	ROD ANTENNA
	2982291	ANTENNA ADAPTOR
	3733241	LEAD CLAMP
	45140635	3x8 SCREW
	45195041	3x8 SELF TAPPING SCREW BLACK
	41594235	M3x12 SCREW W/WASHER
	3016423	FRAME ASS'Y
	3709903	DOOR-VR
	3462231	BACK COVER ASS'Y
	3727972	HOLDER-AC LINE CORD
	3268521	POWER KNOB
	3268061	KNOB-TOUCH
	87816461	4x16 TAPPING SCREW
	8781650	4x20 TAPPING SCREW
DL301	2164571	DELAY LINE
DL501	2791154	DELAY LINE
E005	2982292	ANTENNA ADAPTOR
E006	2669221	COUPLER
E007	2951151	ANTENNA ADAPTOR
E401	26617525	PLUG-PIN
E601	26638225	PLUG-PIN
E7001	2663825	6P MINI-PLUG PIN
E851	2953641	CRT SOCKET
E9001	26617525	PLUG PIN
⚠E9003	27202215	FUSE HOLDER
⚠E9004	27202215	FUSE HOLDER
⚠E903	2744541	AC CORD
E905	2661751	PLUG PIN WITH BASE
E907	26617535	PIN PLUG WITH BASE
E991	37205015	LEAD CLAMP
FB1101	2774651	FERRITE BEADS CORE
FB251	2123461M	FERRITE BUZZER CORE
FB302	2123461M	FERRITE BUZZER CORE
FB302A	2123461M	FERRITE BUZZER CORE
FB501	2774631	FERRITE BEADS CORE
FB702	2123461M	FERRITE BUZZER CORE
FB703	2123461M	FERRITE BUZZER CORE
FB704	2123461M	FERRITE BUZZER CORE
FB705	2123461M	FERRITE BUZZER CORE

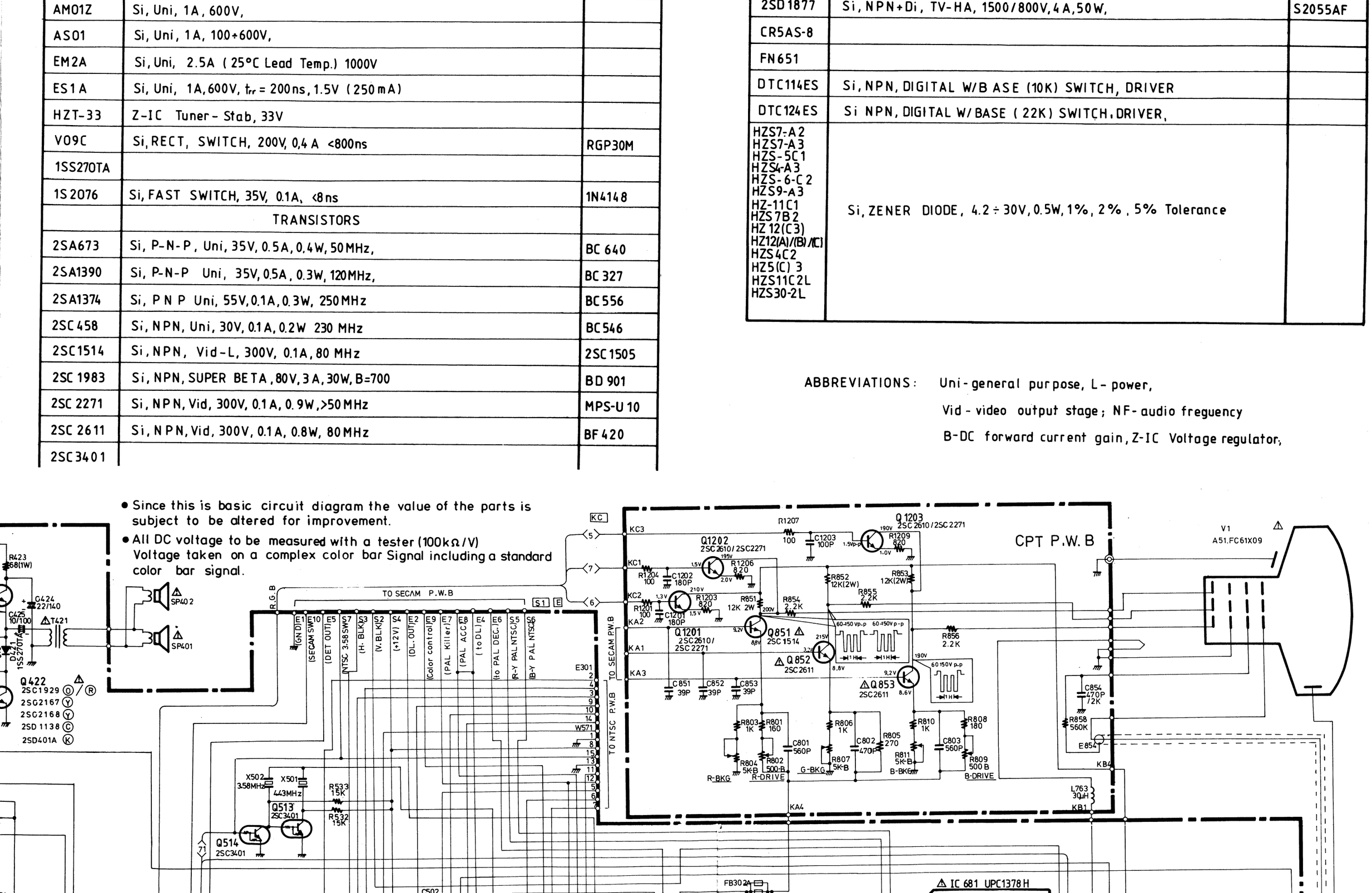
SYMBOL NO.	PART NO.	DESCRIPTION
FB9001	2123462	FERRITE BUZZER CORE
FB9002	2123462	FERRITE BUZZER CORE
FB901	2774631	FERRITE BEADS CORE
FB903	2774731	FERRITE BEADS CORE
FB904	2774631	FERRITE BEADS CORE
FB907	2774731	FERRITE BEADS CORE
FB908	2774731	FERRITE BEADS CORE
FB909	2774731	FERRITE BEADS CORE
N792	4520881	M3x8 SCREW (WITH WASHER)
N911	37218325	FASTENNER
⚠SP401	2412572	SPEAKER 6x9
S001	2632851	TACTO SWITCH
S002	2633066	SW. BLOCK WITH VR
⚠S901	2632501	POWER SWITCH
⚠TH901	2340541	TH 160YB
⚠U001	2426335	TUNER ET-595E
⚠U002	2982531	ANTENNA SOCKET
U1101	2970492	REMOTE CONTROL TRANSMITTER
⚠V1	2357012	CPT A34JRH61X
X1101	2164791	CERAMIC OSCILLATOR
X501	2787572	CRYSTAL
X502	27885915	CRYSTAL
X701	2786683	CERAMIC OSCILLATOR

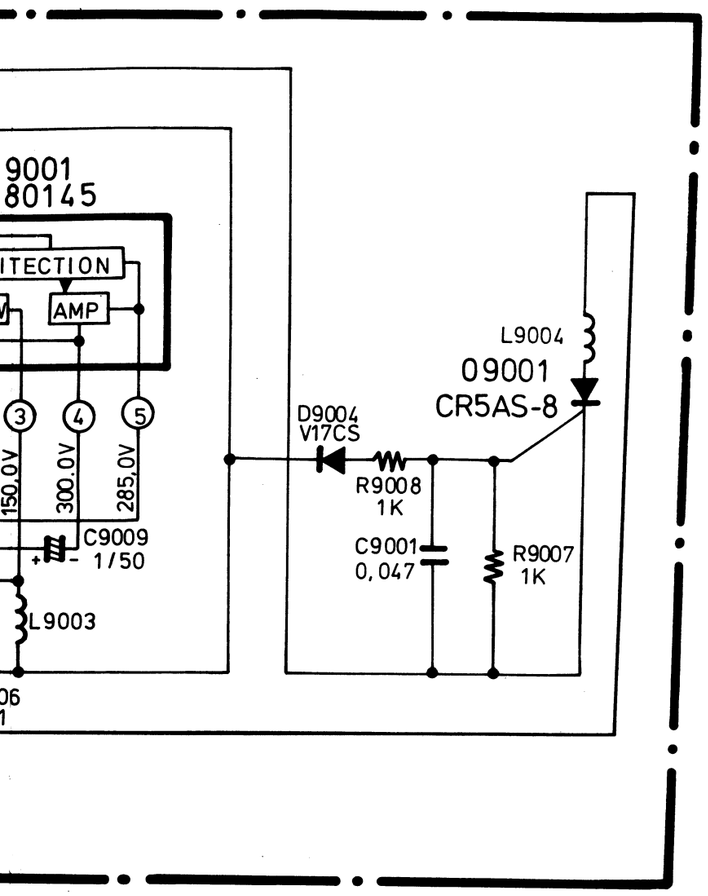
LIST OF DIODES AND TRANSISTORS

TYPE	SHORT DESCRIPTION ; DATA	EQUIVALENTS
AM01Z	Si, Uni, 1A, 600V,	
AS01	Si, Uni, 1A, 100÷600V,	
EM2A	Si, Uni, 2.5A (25°C Lead Temp.) 1000V	
ES1A	Si, Uni, 1A, 600V, t_{rr} = 200ns, 1.5V (250mA)	
HZT-33	Z-IC Tuner - Stab, 33V	
V09C	Si, RECT, SWITCH, 200V, 0,4A <800ns	RGP30M
1SS270TA		
1S2076	Si, FAST SWITCH, 35V, 0.1A, <8ns	1N4148
	TRANSISTORS	
2SA673	Si, P-N-P, Uni, 35V, 0.5A, 0,4W, 50MHz,	BC 640
2SA1390	Si, P-N-P Uni, 35V, 0.5A, 0.3W, 120MHz,	BC 327
2SA1374	Si, P N P Uni, 55V, 0.1A, 0.3W, 250MHz	BC556
2SC458	Si, NPN, Uni, 30V, 0.1A, 0.2W 230 MHz	BC546
2SC1514	Si, NPN, Vid-L, 300V, 0.1A, 80 MHz	2SC1505
2SC 1983	Si, NPN, SUPER BETA, 80V, 3A, 30W, B=700	BD 901
2SC 2271	Si, NPN, Vid, 300V, 0.1A, 0.9W, >50MHz	MPS-U 10
2SC 2611	Si, NPN, Vid, 300V, 0.1A, 0.8W, 80MHz	BF 420
2SC3401		
2SC 3413	Si, NPN, Uni, 40V, 0.1A, 0.3W, 200MHz	BC 546
2SC 3399	Si, NPN, DIGITAL w/ B-15E RESISTOR (47K), Switch, DRIVER	
2SD 401	Si, NPN, NF/S-L, TV-VA 200V, 2A, 20W, 10MHz	2SD1138
2SD 1877	Si, NPN+Di, TV-HA, 1500/800V, 4A, 50W,	S2055AF
CR5AS-8		
FN651		
DTC114ES	Si, NPN, DIGITAL W/BASE (10K) SWITCH, DRIVER	
DTC124ES	Si NPN, DIGITAL W/ BASE (22K) SWITCH. DRIVER,	
HZS7-A2 HZS7-A3 HZS-5C1 HZS4-A3 HZS-6-C2 HZS9-A3 HZ-11C1 HZS7B2 HZ12(C3) HZ12(A)/(B)/(C) HZS4C2 HZ5(C)3 HZS11C2L HZS30-2L	Si, ZENER DIODE, 4.2 ÷ 30V, 0.5W, 1%, 2%, 5% Tolerance	

ABBREVIATIONS: Uni - general purpose, L - power,
Vid - video output stage; NF - audio freguency
B-DC forward current gain, Z-IC Voltage regulator,

- Since this is basic circuit diagram the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V) Voltage taken on a complex color bar Signal including a standard color bar signal.

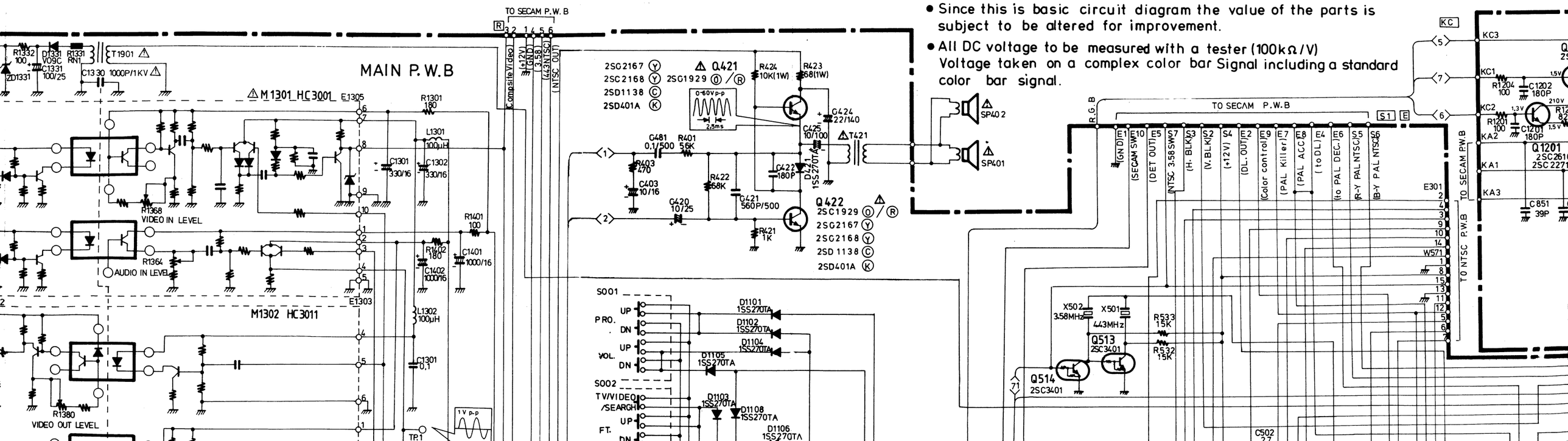


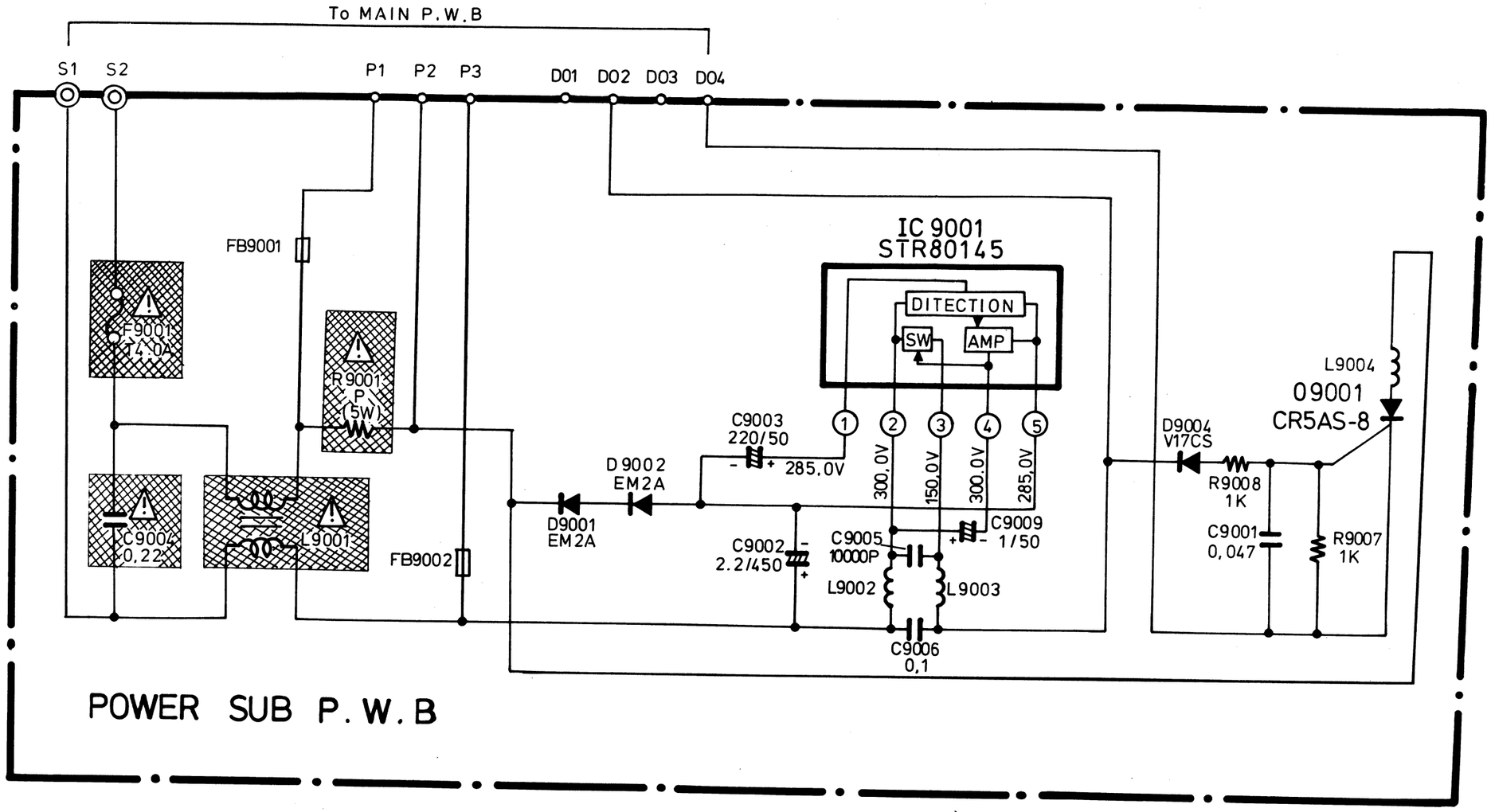


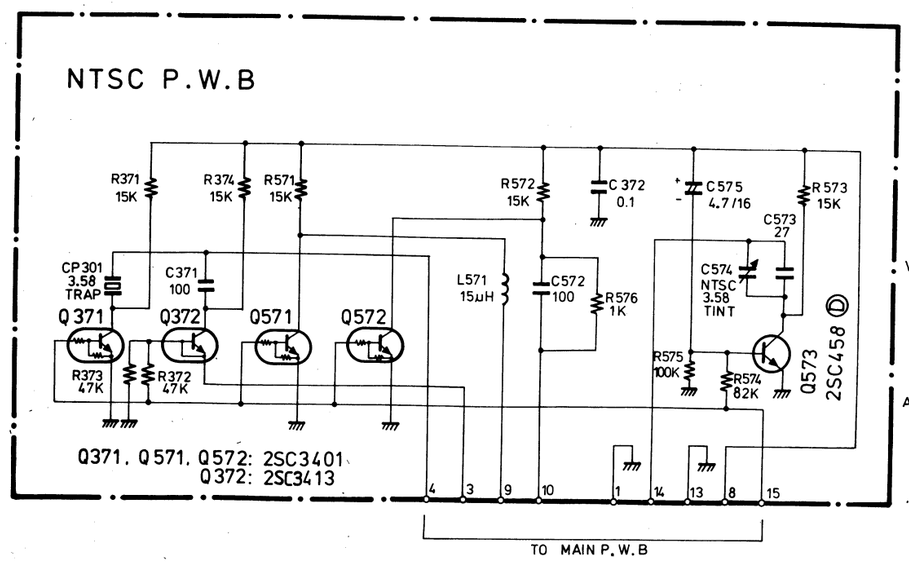
LIST OF DIODES AND TRANSISTORS

TYPE	SHORT DESCRIPTION ; DATA	EQUIVALENTS
AM01Z	Si, Uni, 1A, 600V,	
AS01	Si, Uni, 1A, 100÷600V,	
EM2A	Si, Uni, 2.5A (25°C Lead Temp.) 1000V	
ES1A	Si, Uni, 1A, 600V, t_{rr} = 200ns, 1.5V (250mA)	
HZT-33	Z-IC Tuner - Stab, 33V	
V09C	Si, RECT, SWITCH, 200V, 0,4 A <800ns	RGP30M
1SS270TA		
1S2076	Si, FAST SWITCH, 35V, 0.1A, <8ns	1N4148
	TRANSISTORS	
2SA673	Si, P-N-P, Uni, 35V, 0.5A, 0,4W, 50MHz,	BC 640
2SA1390	Si, P-N-P Uni, 35V, 0.5A, 0.3W, 120MHz,	BC 327
2SA1374	Si, P N P Uni, 55V, 0.1A, 0.3W, 250MHz	BC556
2SC458	Si, NPN, Uni, 30V, 0.1A, 0.2W 230 MHz	BC546
2SC1514	Si, NPN, Vid-L, 300V, 0.1A, 80 MHz	2SC1505
2SC 1983	Si, NPN, SUPER BETA, 80V, 3A, 30W, B=700	BD 901
2SC 2271	Si, NPN, Vid, 300V, 0.1A, 0.9W, >50MHz	MPS-U 10
2SC 2611	Si, NPN, Vid, 300V, 0.1A, 0.8W, 80MHz	BF 420
2SC3401		

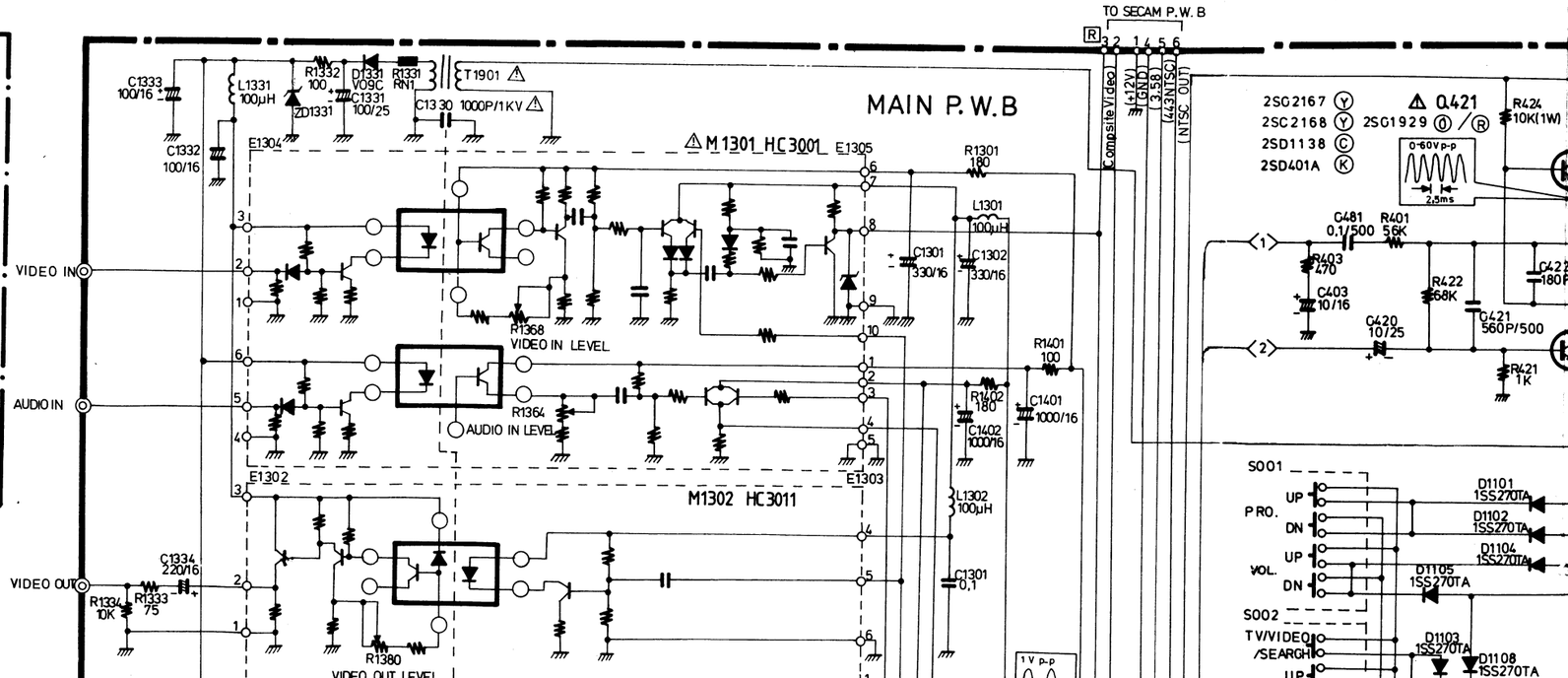
- Since this is basic circuit diagram the value of the parts is subject to be altered for improvement.
- All DC voltage to be measured with a tester (100kΩ/V) Voltage taken on a complex color bar Signal including a standard color bar signal.

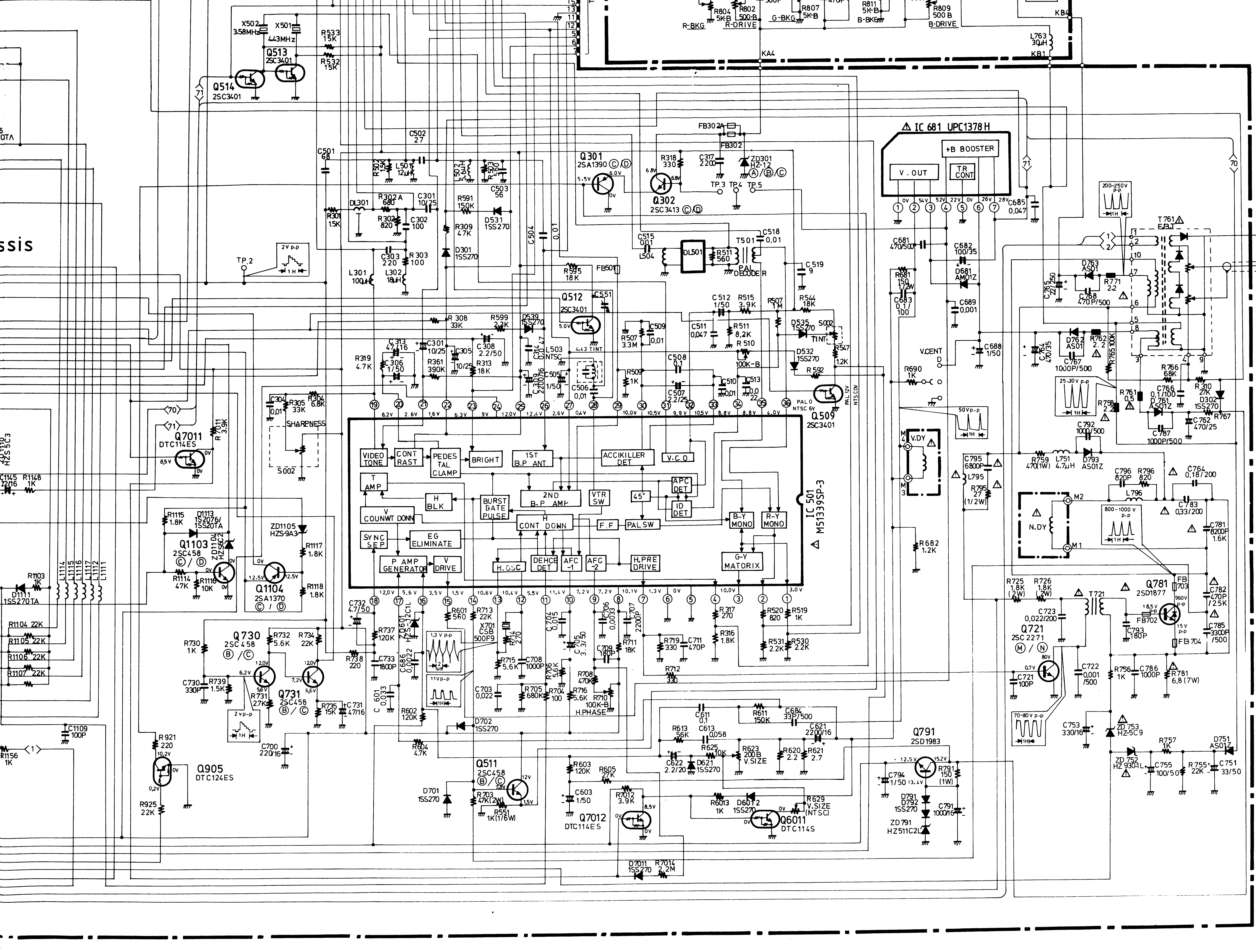






PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety.
Before replacing any of these components read carefully the PRODUCT SAFETY NOTICE





X502 3.58MHz
X501 4.43MHz
Q513 2SC3401
Q514 2SC3401
R533 15K
R532 15K
C502 27
C501 68
R502 1.5K
L501 12μH
L502 5.6μH
R503 560
C503 56
DL301
R302A 680
C301 10/25
R301 1.5K
R302 820
C302 100
R591 150K
D531 1SS270
R309 47K
D301 1SS270
C504
0.01
C303 220
R303 100
L301 100μH
L302 18μH
TP.2
2V p-p
1H
Q301 2SA1390 Ⓒ/Ⓓ
Q302 2SC3413 Ⓒ/Ⓓ
R318 330
C317 2200
ZD301 HZ-12 Ⓐ/Ⓑ/Ⓒ
TP.3 TP.4 TP.5
FB302A
FB302
KA4
R-BKG
R804 5K-B
R802 500-B
R-DRIVE
G-BKG
R807 5K-B
R811 5K-B
B-BKG
R809 500 B
B-DRIVE
KB4
L763 30μH
KB1
C515 0.01
L504
DL501
R511 560
T501 PAL DECODER
C518 0.01
C519 9
R595 18K
FB501
Q512 2SC3401
C551
4.43 TINT
R308 33K
R599 2.2K
D539 1SS270
C313 47/16
C306 1/50
C301 10/25
C305 10/25
C308 2.2/50
R361 390K
R313 18K
R319 4.7K
C314 0.047
L503 NTSC
C309 2200/16
C505 1/50
C506 0.01
C512 1/50
R515 3.9K
R507 1M
R544 18K
C511 0.047
R511 8.2K
R510 100K-B
R507 3.3M
C509 0.01
R509 1K
C508 0.1
C507 2.2/25
C510 0.01
C513 0.022
D535 1SS270
S002 TINT
R547 1.2K
D532 1SS270
R592
Q509 2SC3401
PAL 0 NTSC 6V
PAL 12V NTSC 0V
C304 0.01
R305 33K
R304 6.8K
SHARPNESS
S002
Q7011 DTC114ES
R7011 3.9K
IC 501 M51339SP-3
VIDEO TONE
CONT RAST
PEDES TAL CLAMP
BRIGHT
1ST B.P ANT
ACCIKILLER DET
V.C.O
T AMP
H BLK
BURST GATE PULSE
2ND B.P AMP
VTR SW
45°
APC DET
ID DET
V COUNWT DONN
SYNC SEP
EG ELIMINATE
H CONT DOWN
F.F
PAL SW
B-Y MONO
R-Y MONO
P AMP GENERATOR
V DRIVE
H.OSC
DEHCE DET
AFC -1
AFC -2
H.PRE DRIVE
G-Y MATORIX
IC 681 UPC1378H
+B BOOSTER
V.OUT
TR CONT
C685 0.047
C681 470/500
C682 100/35
D681 AM01Z
R681 150 1/2W
C683 0.1/100
C689 0.001
C688 1/50
V.CENT
R690 1K
50Vp-p
V.DY
R682 1.2K
T761 FBT
200-250V p-p
D763 AS01
R771 2.2
C765 22/250
C768 470P/500
D762 AS01
R762 2.2
C764 470/35
C767 1000P/500
R765 100K
R766 68K
C766 0.1/100
R310 27K
D302 1SS270
D761 AS01Z
R761 0.5
R758 2.2
25-30V p-p
C762 470/25
R767
C787 1000P/500
C792 1000/500
R759 470(1W)
L751 4.7μH
D793 AS01Z
C795 6800P
L795
R795 27 (1/2W)
C796 820P
R796 820
L796
C764 0.18/200
C783 0.33/200
N.DY
800-1000 V p-p
C781 8200P 1.6K
R725 1.8K (2W)
R726 1.8K (2W)
T721
Q781 2SD1877
FB 703
C782 470P /2.5K
C723 0.022/200
Q721 2SC2271 Ⓜ/Ⓝ
FB702
C793 180P
FB704
C785 3300P /500
C721 100P
C722 0.001 /500
R756 1K
C786 1000P
R781 6.8 (7W)
70-80V p-p
C753 330/16
ZD753 HZ-5C9
R757 1K
D751 AS01Z
ZD752 HZ9304L
C755 100/50
R755 22K
C751 33/50
Q791 2SD1983
C794 1/50
R791 150 (1W)
D791 D792 1SS270
C791 1000/16
ZD791 HZ511C2L
R1115 1.8K
D1113 1S2076/ 1SS20TA
Q1103 2SC458 Ⓒ/Ⓓ
ZD1104 HZS6C2
R1114 47K
R1116 10K
Q1104 2SA1370 Ⓒ/Ⓓ
ZD1105 HZS-9A3
R1117 1.8K
R1118 1.8K
R1103 1K
D1111 1SS270TA
L1114 L1115 L1116 L1117 L1112 L1111
R1104 22K
R1105 22K
R1106 22K
R1107 22K
C1145 22/16
R1148 1K
C1109 100P
R1156 1K
R921 220
Q905 DTC124ES
R925 22K
Q730 2SC458 Ⓑ/Ⓒ
Q731 2SC458 Ⓑ/Ⓒ
R730 1K
R732 5.6K
R734 22K
R738 220
C730 330P
R739 1.5K
R731 2.7K
R735 15K
C731 47/16
C700 220/16
2Vp-p
C732 4.7/50
R737 120K
C733 1800P
C601 0.033
C686 0.0022
ZD601 HZS-12C1L
R602 120K
R604 4.7K
1.3V p-p
11Vp-p
R601 560
R713 22K
X701 CSB 500F9
R714 270
R715 5.6K
C708 1000P
C703 0.022
R705 680K
R704 100
R706 5.6K
C704 0.015
C705 3.3/50
C706 0.0033
C707 2200P
C709 180P
R711 18K
R708 470K
R716 5.6K
R710 100K-B H.PHASE
R719 330
C711 470P
R712 330
R317 270
R316 1.8K
R520 820
R519 1K
R531 2.2K
R530 2.2K
D702 1SS270
D701 1SS270
Q511 2SC458 Ⓑ/Ⓒ
R703 47K(2W)
R551 1K(1/6W)
C611 0.1
R611 150K
C684 33P/500
R613 56K
C613 0.058
C621 2200/16
R625 10K
R623 200B V.SIZE
R620 2.2
R621 2.7
C622 2.2/20
D621 1SS270
R603 120K
R605 27K
C603 1/50
Q7012 DTC114ES
R7012 3.9K
R6013 1K
D6012 1SS270
R629 V.SIZE (NTSC)
Q6011 DTC114S
D7011 1SS270
R7014 2.2M

HITACHI CMT 2139

G7PN-M Chassis

M1302 HC3011

IC1101 M34300N4-555SP

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

Q371, Q571, Q572: 2SC3401
Q372: 2SC3413

TO MAIN P.W.B

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety.
Before replacing any of these components read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver though improper servicing.

TO IF P.W.B

M1302 HC3011

VIDEO OUT LEVEL

AUDIO OUT LEVEL

G7PN-M Cha

⚠IC1102 LA 7910

⚠IC1101 M34300N4-555SP

⚠CP1101 BX 1409

⚠CP901 1D19207

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

TO POWER SUB P.W.B.

IF P.W.B

(IF SECTION)

SECAM P.W.B

Q5002
2SC 458 Ⓒ/Ⓓ

10,6V

11,3V

12,3V

ZD5001
HZ-12 Ⓐ /Ⓑ /Ⓒ

R5006 1K

R5007 560

R5004 100

R5005 27K

R5001 82K

T5001 BELL FILTER

C5001 56P

C5002 160P

C5003 0,01

R5002 4,7K

C5004 0,001

R5003 5K-B

R5031 100

C5032 33/16

C5033 33P

C5005 0,01

C5006 0,01

L5002 R-Y DISCRI

R5018 3.9K

C5009 0,01

C5010 18

C5011 120

L5003 15μH

R5009 2.7K

C5013 1/50

R5012 10K

C5015 1/50

R5010 56K

C5016 100

D5001 1S2076

R5011 4.7K

R5012 1/50

C5014 4.7/25

S2

S3

S5

E9

13 0V

14 2.5V

15 3.4V

16 12.4V

17 7.7V

18 2.6V

19 1.3V

20 3.4V

21 5.2V

22 5.2V

23 10,8V

24 7.3V

⚠
IC5001
AN5635N-A

LIMITER AMP(U)

LIMITER AMP

LIMITER AMP

PAL AMP

PAL SECAM SW

IDENT DISCLI

F.F

LINE SYSTEM DISCLI

BURST GATE

B-Y PERMU-TATER

R-V PERMU-TATER

H.PULSE BLK

R-Y DISCRI

BURST GATE

B-Y COLOUR CONT

R-Y COLOUR CONT

PAL SECAM SW

B Y CLAMP

PAL SECAM SW

R-Y CLAMP

COLOUR CONT

R-Y, G-Y, B-Y MATRIX

PAL COLOUR SAT.

R5028 10K-B

R5029 5.6K

R5016 82K

C5029 47/16

5,4V

C5034 180

5.8V

R5018 1.2K

0,03V

R5017 6,8K

C5030 680

L5001 15mH

12 3.5V

11 4.3V

10 8.0V

9 2.6V

8 1.8V

7 3.4V

6 5.1V

5 10.7V

4 5.1V

3 7.3V

2 7.3V

1 7.3V

R5025 150

R5026 150

R5027 150

C5024 1/50

C5025 330

C5026 330

C5027 330

C3

C1

C2

E7

S6

E2

E1

R5032 470

R5024 15K

C5018 1000

C5019 0,01 /50

C5008 0.01

L5003

C5020 0,01

C5021 22

R5020 3.9K

L5006 15μH

C5022 270

R5021 2.7K

C5023 1/50

R5019 270K

B-Y DISCRI

5.6V

5.5V

4.4V

L5004

IDENT DISCRI

Q5004
2SC3401

R5033 47K

IF P.W.B
(IF SECTION)

SECAM P.W.B

R267 100
C275 8P
C260 0,01
C259 0,47 /50
R262 1K
R261 180
L251
L256
C265 0,47 /50
C282 8P
C263 0,01
R264 1K
R263 560K
C276 0,47 /50
R451 100
R464
R266 1K
R265 150
C264 22P
C262 18P

24 1,9V | 23 3,3V | 22 0V | 21 5,0V | 20 6,4V | 19 11,3V | 18 11,3V | 17 12,5V | 16 6,2V | 15 4,1V | 14 4,1V | 13 10,3V

LIN AMP | LOCK DET | VIDEO AMP | APC DET | VCO | VIDEO DET | AFC | IF AGC

FM DET | ATT | AF AMP | RIF AMP | RF AGC

+Vcc GND

1 5,3V | 2 5,0V | 3 5,6V | 4 4,3V | 5 4,4V | 6 12,5V | 7 0V | 8 4,4V | 9 4,4V | 10 3,7V | 11 6,2V | 12 10,2V

L451 22µH
C453 0,01
MF452 6MHz
R456 58K
R457 1K
R458 5.6K
R459 39K
R460 100
R461 100
R462 100
R463 2,2K
C266 0,01
C267 100/16
C268 0,01
C280 8P
C270 0,01
C271 0,01
C272 0,15
CP201 H003024
PAL
NTSC
0V
Q452 2SC3399

C251 A7550H

SN
GND 1
OUT 2
GND 3
IN 4
GND 5
C275 8P

SB
1
2

SC
NTSC SW 1
DET OUT 2
+12V 3

AFD NFB ATT AFC AGC ATT FMO DET

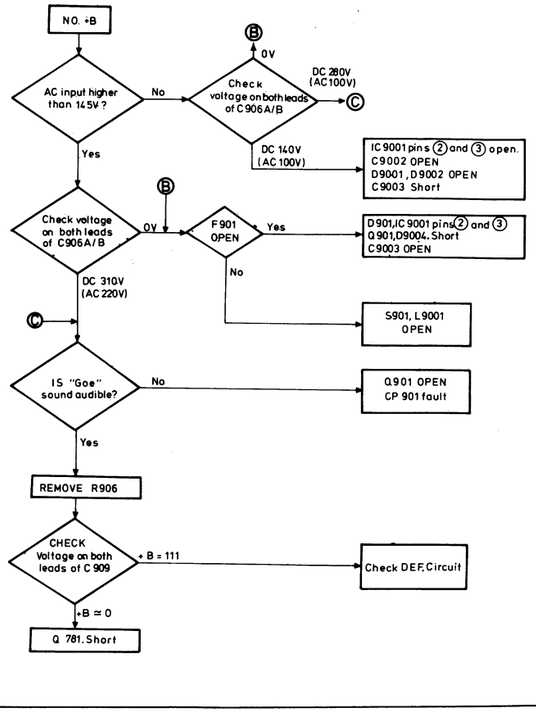
S2 S3 S5 E9

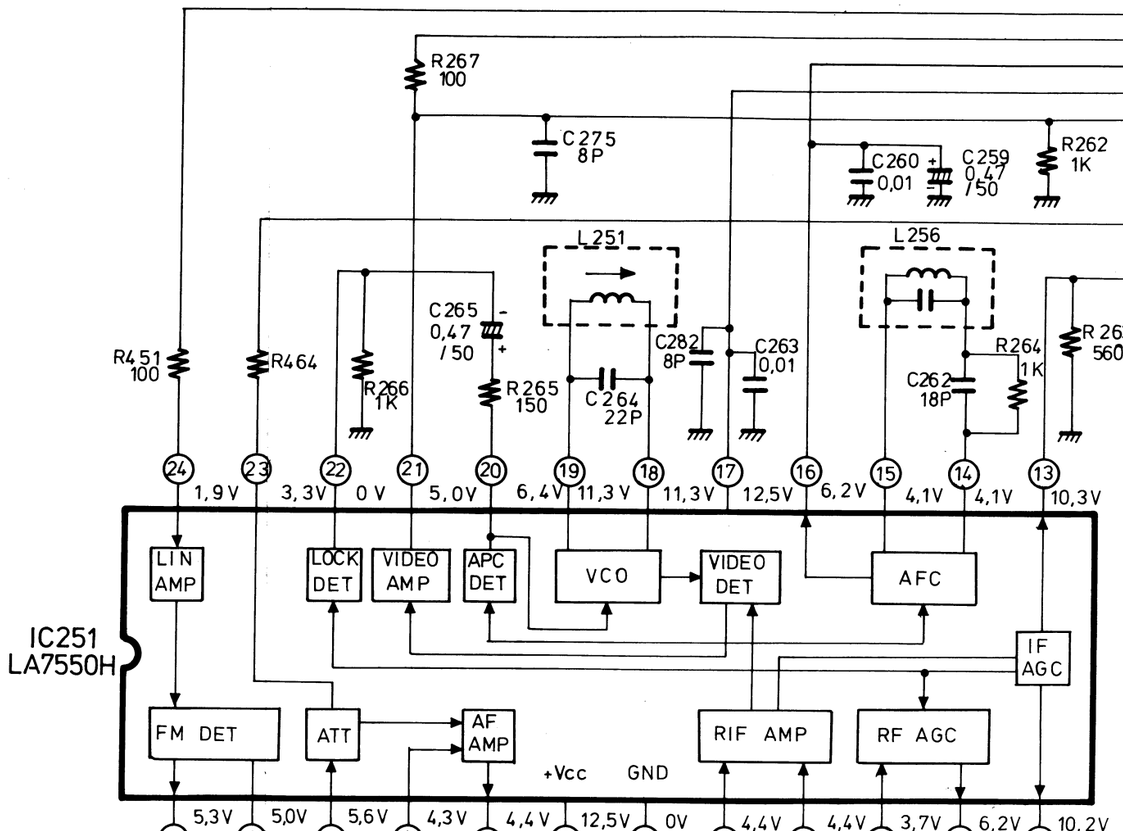
R5010 56K
D5001 1S2076
R5011 4.7K
C5015 1/50
R5012 10K
C5016 100
C5013 1/50
C5011 120
R5009 2.7K
C5010 18
L5003 15µH
R5012 1/50
R5018 3.9K
R5005 27K
L5002 RY DISCRI
C5009 0,01
R5004 100
C5006 0,01
R5003 5K-B
C5033 33P
R5002 4,7K
R5031 100
C5004 0,001
C5032 33/16
C5014

Q5002 2SC 458 Ⓒ/Ⓓ
11,3V
12,3V
10,6V

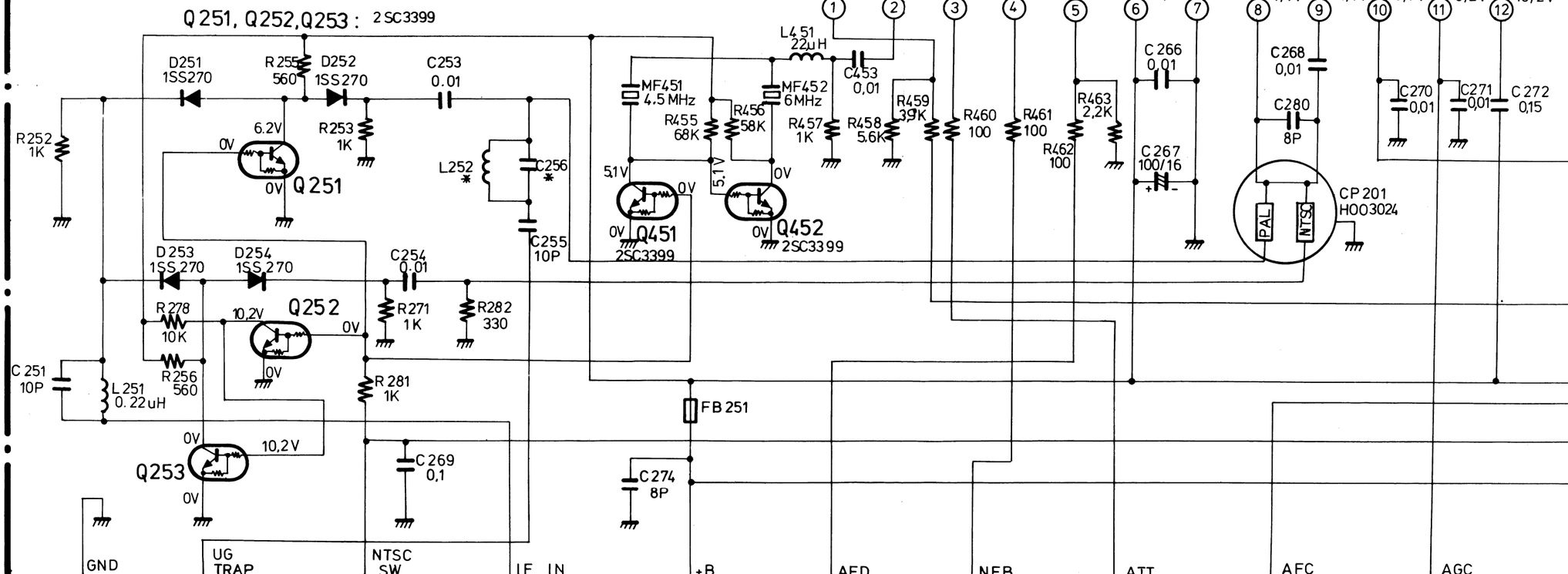
R5006 1K
ZD5001 HZ-12 Ⓐ/Ⓑ/Ⓒ
R5007 560
T5001 BELL FILTER
C5003 0,01
R5001 82K
C5002 160P
C5001 56P

TROUBLESHOOTING AND REMEDY





Q 251, Q252, Q253 : 2SC3399



10P
L251 0.22uH
R260 560
R261 1K
0V
10,2V
Q253
0V
C269 0,1
FB251
C274 8P
NTSC SW
DET OUT
+12V
GND
UG TRAP
NTSC SW
IF IN
+B
AFD
NFB
ATT
AFC
AGC
ATT
FMO
DET
1
2
3
4
5
6
7
8
9
10
11
12
13
TO MAIN P.W.B

Q4720
2SC3413 Ⓑ / Ⓒ
0,5MHz OSCILLATOR
L4727
R4880 1K
T4720
R4640 100
CP4710 5,5 MHz TRAP
CP4720 6,5MHz TRAP
R4730 10K
C4770 33P
R4760 1K
C4840 0,022
C4850 10/25
C4830 270P
C4820 390
R4810 56
L4720 100µH
C4840 0,01
C4850 33/16
R4780 4,7K
4,9V
Q4740
4,4V
C4730 27P
0V
T4710
R4710 2,7K
10,8V
Q4010
2,0V
1,5V
R4770 1,8K
C4780 270P
R4630 2,2K
10,4V
Q4720
6,6V
7,4V
Q4710
12,5V
R4990 100
5,0V
4,4V
R4980 1K
R4870 220
C4740 0,01
R4860 12
R4720 2,2K
R4740 1K
C4750 0,01
R4750 390
Q4730
6,6V
6,7V
0,5 V
C4760 1000P
D4710 1SS270
R4820 1K
R4800 1K
C4800 0,01
C4790 0,01
C4810 0,01
R4790 47K
L4710 0,5MHz
Q255
2SC3399Ⓑ/Ⓒ
5,0V
4,4V
R277 47K
R278 10K
R259 10K
C258 0,01
C257 0,01
R258 10K
R257 470
L253 6,8µH
L254 10µH
L255 12µH
Q254
2SC1390
Ⓑ/Ⓒ
5,6V
5,0V
0V
CP202 5,5MHz
CP203 6/6,5MHz
CP204 4,5MHz
8,7V
0V
Q256
2SC3407
0V
C2
C3
B2
AGC
B1
R272 30K-B
12,0V
Q257
2SC3413Ⓑ/Ⓒ
0V
R279 100
R280 1K
C1
A5
Q4710 2SC3413 Ⓒ / Ⓓ MIXER
Q4740 2SA 1374 Ⓒ/Ⓓ AMP
Q4010 2SC3413 Ⓒ / Ⓓ BUFFER
L4475
C4463 10/16
MF4402 6,0MHz FILTER
C4491 1000P
Q4730
2SA3374 Ⓒ / Ⓓ
0,5 MHz BUFFER AMP.
R4484 1K
Q4474
12,5V
0V
12,5V
R4487 5,6K
1,8V
1,3V
Q4473
C4462 22/16
MF4401 4,5 MHz FILTER
L4471 33µH
C4475 33P
C4469 1000P
D4471 1SS270
D4472 1SS270
R4488 1K
04474 } 2SC3413
04473 }
R4485 5,6K
R4486 1K
C451
IF P.W.B
(SOUND MULTI SECTION)
A2
A1
A4
A3

NTSC SW 1
DET OUT 2
+12V 3
SC

NFB 7
ATT 8
AFC 9
AGC 10
ATT 11
FMO 12
DET 13

TO MAIN P.W.B

Q4730
2SA3374 Ⓒ / Ⓓ
0,5 MHz BUFFER AMP.

04474 } 2SC3413
04473 }

R4640 100
C4820 390
L4720 100µH
C4840 0,01
C4850 33/16
R4810 56
R4780 4,7K
Q4720 6,6V
7,4V
C4800 0,01
C4790 0,01
R4790 47K
R4800 1K
C4810 0,01
L4710 0,5MHz

Q255
2SC3399 Ⓑ/Ⓒ
5,0V
4,4V
4,4 V
R277 47K
R278 10K
R259 10K
C258 0,01
C257 0,01
R 258 10K
R257 470
L253 6,8µH
L254 10µH
L255 12µH
Q254
2SC1390 Ⓑ/Ⓒ
5,6V
5,0V
0V
CP204 4,5MHz
CP202 5,5MHz
CP203 6/6,5MHz
8,7V
0V
Q256
2SC3407
0V

AGC
R272 30K-B
12,0V
Q257
2SC3413 Ⓑ/Ⓒ
0V
R 279 100
0V
R280 1K

C2
C3
B2
B1
C1
A5
A3

ZD5001 HZ-12 Ⓐ
R5001 82K
C5002 160P
C5007 0,01
C 5031 56
C 5001 56P
R5030 56

E6 E4 S4 E 8 E5 E3 S7 E1

TO MAIN P.W.B

IC5001
AN5635N

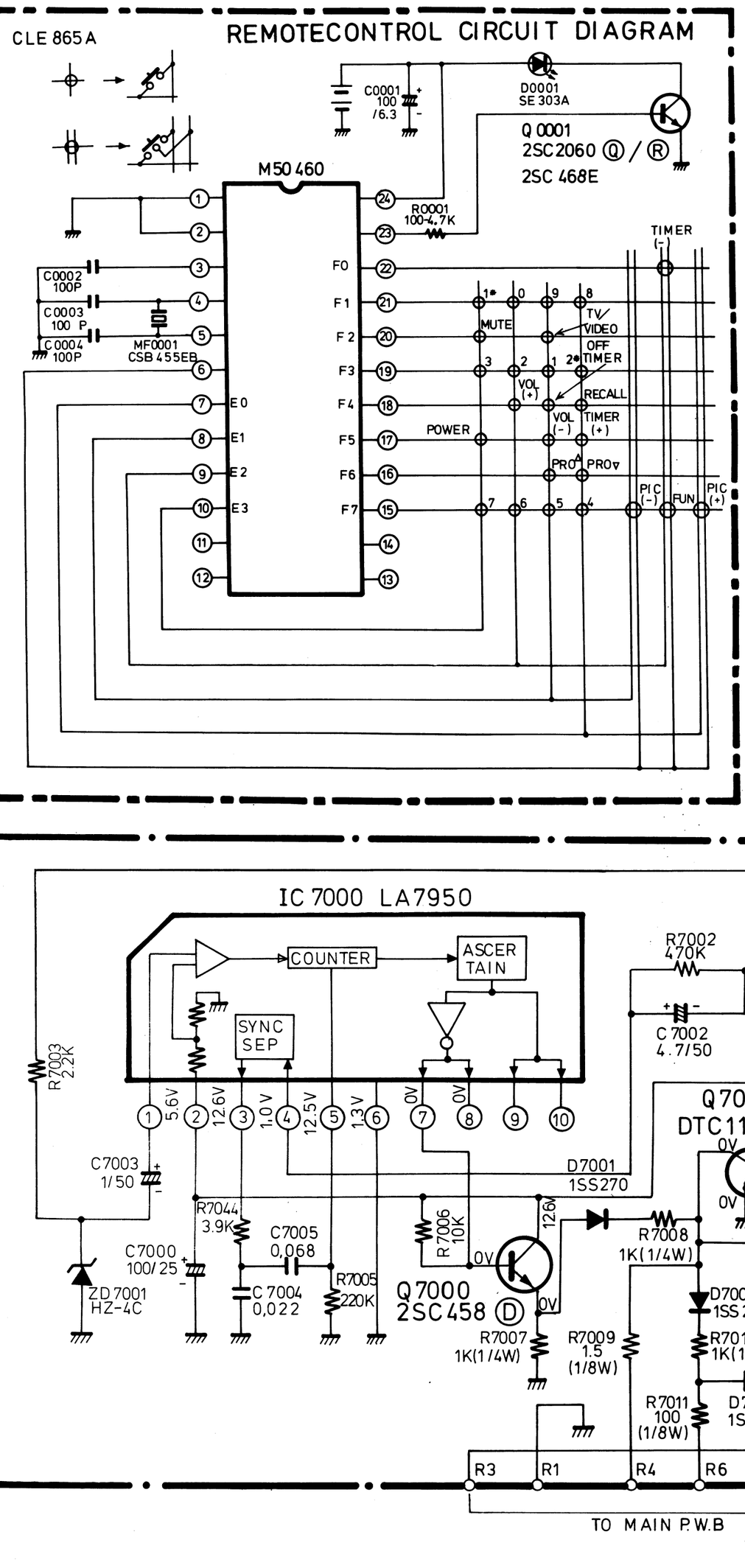
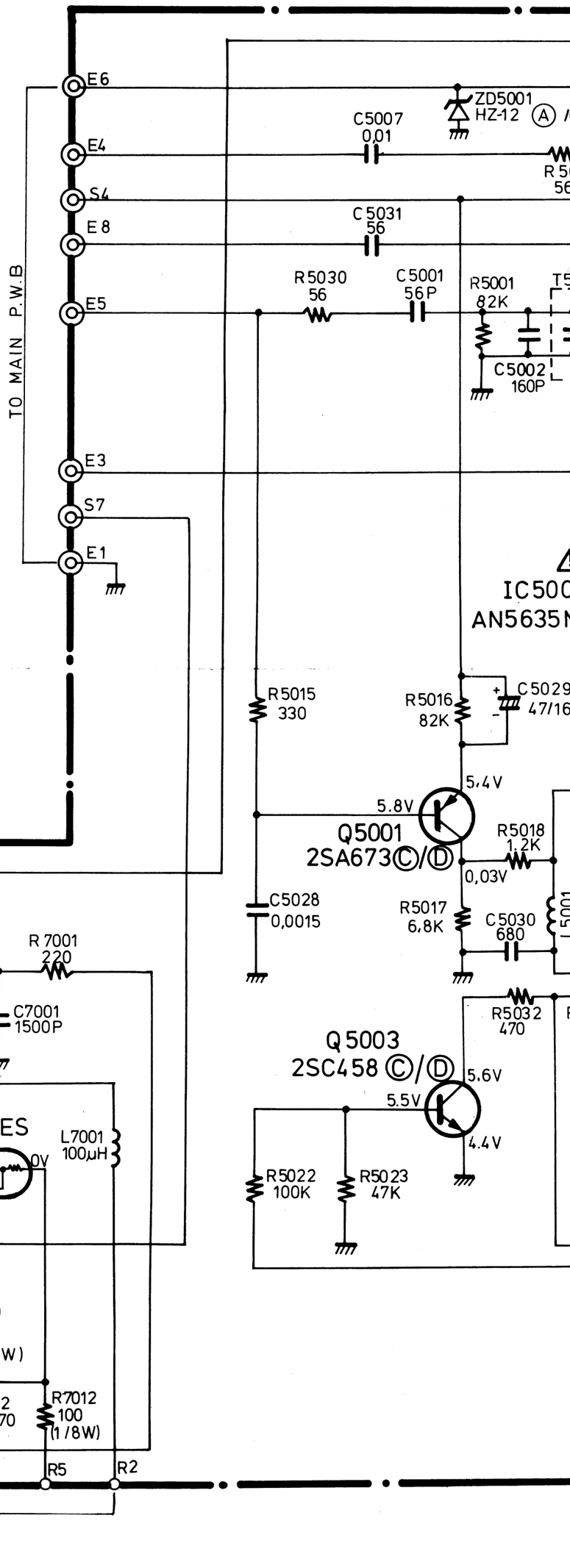
REMOTECONTROL CIRCUIT DIAGRAM

CLE 865A

D0001 SE 303A
Q 0001 2SC2060 Ⓠ / Ⓡ
2SC 468E
R0001 100-4,7K
C0001 100 /6.3
M50460
MF0001 CSB 455EB
C0002 100P
C0003 100 P
C0004 100P

TIMER (-)
PIC (+)
PIC (-)
FUN
TV/VIDEO
OFF TIMER
RECALL
VOL TIMER (+)
VOL TIMER (-)
PROG
MUTE
VOL (+)
POWER

F0 F1 F2 F3 F4 F5 F6 F7
E0 E1 E2 E3

CLE 865A

REMOTECONTROL CIRCUIT DIAGRAM